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Original Communications.

A Unique Case of Regulating Teeth. Fifteen Years After.

By W. GEO. BEERS, L.D.S., Montreal.

In a paper read before the New York Odontological Society, in December, 1875, I ventured to give one of the quickest cases of regulating the teeth on record, done without plates or ligatures, and comprising ideas as old as Hunter and as modern as Tomes. The case was a unique one, inasmuch as it was one where the patient, a young man eighteen years old, had determined to have the teeth extracted and artificial substitutes inserted. I am aware that other modes of treatment might have been used by those who could command a large fee, but as the case was one which I volunteered as an experiment, and for which no reasonable fee was expected, I made choice of two evils—the one I chose having proved to be a blessing in disguise. Through the courtesy of the publisher of the "Cosmos" I am able to present the illustrations.

Fig. 1 shows the normal centrals lying outside of the arch, five-eighths of an inch apart, the left lateral behind the first central, three-eighths of an inch distant, with one side against the back of the canine, while the right lateral is crowded to the rear by the cuspid and central. On the left side of the median line is implanted a malformed supernumary lateral; on the right a supernumary central, perfectly formed on the lateral, but concave and irregular on the lingual side. Its lateral surface is turned towards the supernumary lateral, thus lying obliquely and touching the lateral. Evidently these supernumary teeth had displaced the normal dentition. This is somewhat analogous

to a transposition of the dental germs in position, and owing to the distance of the normal centrals from each other, it was utterly impossible to bring them into juxta position or into any sort of harmony. The transposition of teeth might cause just such a result as the separation of the centrals. Fig. 1 well illustrates the case as it came to me first.

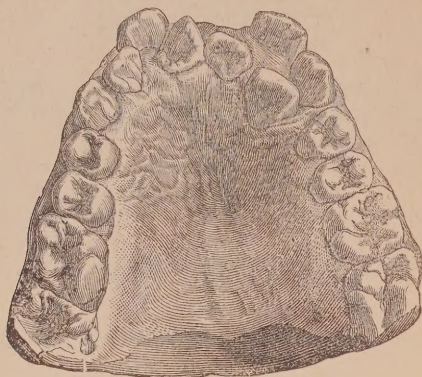


Fig. 1.

I first extracted the right normal central. It was too far out of the proper line, and too far from the median line to be brought into position by any mechanical means. Immediately afterwards I slowly turned the supernumary on its axis, as suggested by Tomes, bringing it to the "front face." Having previously prepared a plate fitting the roof of the mouth, I attached floss-silk

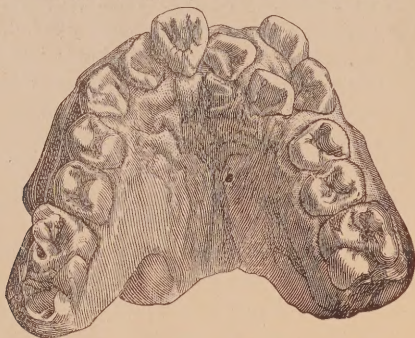


Fig. 2.

to the intruder, and drew it back in one day into line with the lateral. The gum was painted with aconite and iodine, and the patient instructed to keep the lips and gum cool with ice. In two days the tooth was firmly in line, and the ligature was removed. The case then presented the appearance seen in Fig. 2.

Members of the Quebec Dental Society will probably remember a case presented by Dr. H. D. Ross, of Quebec, in which he replanted a dislodged central incisor, and which he afterwards, when regulating the teeth of the same patient, found he could not move by any mechanical means he used. It was firmer than nature had originally put it. Something similar occurred in the socket of this supernumary twisted central, for ever since it has been singularly solid.

In Tomes' Dental Surgery, edition 1873, page 197, is seen a somewhat similar case of irregularity in appearance, though from transposition of the permanent teeth, instead of from displacement by supernumeraries. The canine is placed between the central and lateral; the teeth being otherwise quite regular. Referring to it the author says: "In a practical point of view no great interest is attached to this form of irregularity, as it does not admit of remedy." Garretson's System of Oral Surgery, page 480, says, "Instances are



Fig. 3.

met where certain teeth have completely changed position. A lateral incisor appears in the situation of a central, the central occupying the place of the lateral. *Here there is no correction possible except it be in the extraction of the teeth*, and their re-arrangement upon a plate or through the pivoting process." Salter, in his Dental Pathology and Surgery, page 51, in writing of the transposition of teeth, supposes a case almost identical with that shown in Fig. 2, and says, "*Still no remedy is available.*" Fox mentions a case like Fig. 1, where two supernumary teeth were situated partly behind and partly between the central incisors, which were consequently thrown forward. The centrals were half an inch apart and formed one row with the cuspids, as in Fig. 1, and the laterals and supernumeraries another. Fox saw three cases of the kind, but it is considered very rare. The one of which I write had this appearance, but instead of the supernumeraries being of a conical and therefore useless form,

the central was perfect on the lateral side and, as seen in Fig. 1, turned towards the median line.

My patient was now treated as follows : It will be remembered that Fig. 2 was the result of the first operation. A few days afterwards I extracted the supernumary lateral, on the left side of the median line. I then extracted the left normal central which was so high on the upper part of the alveolus that the lip entirely concealed it (see Fig. 1). After excising the apex of its root, I pushed it slowly up into the socket of the latter I had just extracted, fortunately securing the beautiful relation and contiguity seen in Fig. 3. In two days the transplanted tooth was apparently as firm as its neighbor which had undergone torsion ; and there they are to-day, after four years, as comfortable and alike as if they had grown into the regular harmony they now present.

The cuspid was drawn by ligatures back to the bicuspid, and the irregular central brought easily into place. The latter was a very easy matter as any one familiar with regulating teeth is aware.

Both operations were done in the presence of my friend and former colleague, Dr. Chas. Brewster, who has himself admirably succeeded in some cases of both torsion and transplantation. The patient kindly allowed several other confreres to see the case.

I may add that I shall not be amazed some day to learn that the teeth are loosening in their sockets. I do not here stop to consider constitutional conditions which should dissuade any one from attempting a case like this. These conditions have been well discussed elsewhere, and are familiar to the profession.

The above case was published in the *Canada Journal of Dental Science* eleven years ago. The uncertainty at the time of its permanent success makes its history interesting fifteen years after the operation. About two months ago I learned that the patient has repeatedly displayed the firmness of the teeth, by placing stout cord between his teeth and pulling it forcibly. He has never had the least trouble with the teeth ; no periosteal trouble ; in fact is unconscious that they were ever any differently placed.

A Plea for Tube Teeth.

By C. H. WELLS, L.D.S., Huntingdon, Que.

During a brief practice in the old country some years ago, I was forcibly struck with the many advantages of the English tube over the pin tooth, and the conviction remains with me, that even critics here who have never used them and who therefore are apt to despise them, would probably change their opin-

solid as flint, and I have yet to meet the first failure on any such account as that friability characteristic of our teeth. I should like to see you cut one of these teeth in two with a pair of scissors, as you can cut clean our gum blocks! You might as well try to take a bite out of a bit of steel.

A Batch of Hints.

By R. D.

You invite hints in brevity as well as more studied articles; and I believe there is not a dentist living but could send you an original batch several times a year.

Taking a Bite.—Trim your wax, if for upper or lower set, to the contour and length. I once thought that sufficient, but now I get accuracy itself by taking two teeth, if plain teeth, or a couple of the blocks, if gum teeth, cutting away the wax exactly as it has finally to be cut away, to let in the teeth, and then simply set these samplers to the exact length and prominence they are to remain.

Lining Teeth.—In lining bicuspid and molars for gold plates, use heavier backing than for front teeth, as these teeth stand a greater strain. Also add a bit of plate—thus doubling the lining at the bottom next to the plate.

Before you extract for a set, take an impression of the natural teeth, and have it on your laboratory beside the substitute.

Arsenic.—Before applying for the destruction of a pulp, anæsthetize the head of the latter by holding in contact a pellet of cotton, dipped in hot, carbolic acid. Most of dentists use too much arsenic. If the decomposed dentine is properly removed, and the pulp fully exposed, a small pin's head size of arsenic is sufficient.

Facial Fistula.—When a fistula has opened on the outside of the face, on account of poulticing or from any other cause, do not extract the offending tooth until you make an artificial fistula inside the mouth. The outside fistula will heal by granulation. If you extract the tooth before doing so, the tissue certainly will be greatly depressed, and an uglier scar result.

Over-Medication.—In treating alveolar abscesses, we may have too much of a good thing. Many a case of gonorrhœa would get better if syringing was not so often persisted in. It is the same with pumping carbolic acid, peroxide of hydrogen, bichloride of mercury, etc., into alveolar abscesses. Periods of rest ought to be allowed, or only warm water substituted.

ion, as I did, could they see the service they render, and bring them into comparison and competition with their rivals. It is true that for facility of application, the pin teeth are superior, but having said that, I know nothing more to be said in their favor. It is complained that the tube teeth, which are only held on by sulphur, draw from the pin; but what about the American teeth? The pivots or pins of the very best often draw from the teeth. You can easily replace a tube tooth which slips from a pin, or you can rivet it on the top and prevent it from slipping, but you cannot restore the tooth which has lost its pins.

One very great advantage of the tube teeth—the pin being immediately in the centre of the tooth,—is that the strain is directly in the middle; the masticating force comes plump in the centre, and is better distributed. In the pin teeth, this strain is uneven, and it is common, even in gold plates, to find the attachment of the lining broken from the plate. How frequently, too, does it occur with vulcanite. The whole strain on our bicusps and molars, is outwards; is not borne by the lower part of the lining, but by the small metal pins in the tooth. But the metal pivot of stiff gold into which the tube tooth is placed, bears strain better, because it is next to impossible to bring pressure on it at any angle, except the tooth itself first breaks, and not often even then.

Another advantage is that to the tongue tube teeth are nearest to nature, and feel best. With ours, the tongue is constantly in contact with metal linings. Another advantage is that with the exception of the specks of solder holding the pins in the plate, there is no quantity of solder likely to cause contractions in the arch. I was told by old British dentists who used tube teeth thirty years ago, that when the journals were discussing the warping of gold plates in this country, they were rarely troubled, owing, they thought, to the absence of a great quantity of solder. A gold plate with tube teeth always fits well if once made well: but the best gold plate with teeth which have been lined and soldered, may be warped any time it has to be repaired, and may be nearly ruined if a botch should repair it with common solder. No botch can spoil a gold plate with tube teeth, because he cannot adapt a new tooth to perfection.

I admit that for close bites, our teeth are better than tube teeth. They can be used too, better with vulcanite combinations. The cheapening of artificial work, not the improvement of it, has given the boom to the pin tooth, and yet among the latest improvements by several manufacturers, we find a modified form of the old tube teeth, with the holes through the sides, and intended for miserable vulcanite to run into, instead of for solid gold pins.

I am using almost exclusively the English tube tooth—with the interior platinum tube lining, when I can get them, in places where ordinary and even improved methods of pivoting is required. They are as dense and as

Projection of Heated Air.

By L. D. S.

At a meeting of the Odontological Society, of New York, 20th February, 1883, Dr. E. A. Bogue referred to an apparatus he was working upon a few years previously, intended to deliver hot air into the cavity of a tooth while it was being excavated. He showed what he had done to Dr. Brasseur, of Paris, about a year before, and upon returning there in 1883, the latter presented Dr. Bogue with a complete instrument of his own invention. The instrument was operated by means of two rubber bulbs acting on a double bellows. The pipe leading from it was connected with a tube in the handle of the thermo-injector, which tube passing through the handle becomes spiral at a division in front. In the middle of this spiral was a minute jet of gas which entered the back of the handle, and was supplied from the gas bracket on the wall by rubber tubing. The gas heated the spiral tube, which was of platinum, and the air, being driven through it by the bellows, was heated sufficiently to retain its heat until discharged at the nozzle, four or five inches away from the flame. A shield protected the face and lips of the patient. The injector was useful, not only in obtaining unusual dryness, obliterating sensibility, but for throwing remedies, in the form of vapor, into abscesses. Dr. Bogue also referred to an electric cautery invented by M. Trouvé, who had given much attention to electricity.

In connection with the above and with recent devices in dental electricity, it is curious to refer to an article in the *American Journal of Dental Science*, 1851, by George Waite, M.R.C.S., London, England, from which I make the following extracts. The article is headed: "An Instrument for Applying Electric Heat in Dental Operations."

"A conversation with the late Mr. Murphy, of King's College, Cambridge, he suggested to me the use of electricity in dental surgery; his words, as near as I can remember, were as follows: 'The day will come when electric heat will be used in surgery, and also for many purposes in domestic arrangements.'

"The idea remained a secret with me until last year, when I communicated it to Mr. Redwood," etc. . . . "For the purpose I use a Grove's battery, with eight cells. When using it, I have in my hand a holder with two copper wires passing through it; one positive, from the battery, and the other terminating in a groove in the holder, and fastened to a spring, by which I make or break contact at will with the negative wire. To the further end of the two wires a thin platinum wire is connected, and on the battery being charged and contact made, this takes suddenly the electric heat."

"The efficacy and simplicity of the process being so decided, I am enabled to use it for many purposes, viz., to evaporate quicksilver from cement; also where too great sensitiveness exists, and which prevents the operator from

removing the caries ; where gums have receded and left the necks of teeth highly sensitive to the touch ; where teeth are affected by mollities which cannot by other means be combated ; where teeth have been broken, or cut, or filed, and left sensitive to cold or warmth ; where violent toothache exists ; where hæmorrhage comes on, or slight bleeding into a cavity. The electric heat retains its force differently to all other heat which can be applied to the mouth ; the platinum wire can be placed, without the patient being aware of it, near the part affected, heat can be produced almost momentarily and suddenly deadened, and as a most interesting phenomenon, and one which has surprised me very much, in patients of a highly nervous temperament, where I have expected much suffering, none has been endured on its application. It would be superfluous to detail many interesting facts which the use of electric heat will discover to the scientific dentist.

In many cases it will be found equally efficacious when holding it near the teeth, as if they were touched by it. Care must be taken not to continue its application too long, as it will burn up and blacken the part it touches. As time passes on, I look forward to its use being generally understood, and it will then give rise to many improvements tending to the benefit of society."

Reflex Nausea.

By W. G. B.

About a year ago a lady brought me several upper sets of teeth, well made and adapted for her own mouth ; but after a year's trial she had abandoned all attempts to wear them, on account of the gagging and nausea. Perseverance only led to vomiting. The strange fact was that she did not mind plaster of paris impressions, even when they touched the pharynx, and was not discommoded by any handling of the soft palate with the fingers. You could poke your fingers down her tonsils without provoking nausea ; yet the moment she put any one of these sets in her mouth and her tongue touched it, she gasped and gagged until it was removed. In fact, it was quite painful for an unprofessional observer to witness.

The instant conclusion to which I came was that the plate must not cover so much of the hard palate, and I made a set of ten instead of fourteen teeth, reaching about half as far back as any of the others. It was as great a failure. I then made the thinnest possible plate, covering the tuberosities, which were like marbles, and keeping a rim not more than half an inch wide, covering the front of the maxilla. It was retained by suction from three small chambers at the heels and in the centre. The moment the lady attempted to suck it, the plate adhered, but she gagged as much as ever, and was obliged to remove it. I then reduced the plate to the smallest possible compass, with eight teeth, but it was no more successful.

I then painted the soft palate and the fauces with a four-per-cent. solution of hydrochlorate of cocaine. A very slight improvement was perceptible, but after an hour the gagging returned. We both persevered doing this, but it was of no permanent avail. Finally, I made her protrude her tongue, and I sprayed it with the solution. To the surprise of both of us, she instantly for the first time in her experience, sucked the plate into place without the least unpleasant sensation. The effect—and the set—remained for two days, but on the third the old gagging returned, and I could not persuade her to make another effort. The interesting question is, what is the physiological explanation of the cause? Is it not exceptional as illustrating a deviation from the well-known neurosis associated with the nerves of the teeth, as in inflammation of the pulp. Evidently the tongue alone was the sentient seat from which a centripetal current travelled towards the fauces, reappearing as a centrifugal impulse, which excited reflex irritability of the nerves of the stomach, and contraction of the viscus. Yet it was not until the act of suction was performed that the retching occurred. The plate could be put into the mouth and the teeth closed on it without exciting nausea, but the instant the tongue touched it in sucking, the gagging occurred. Was not the dorsum of the tongue in a hypersensitive condition, and did not the spray paralyze the papillæ, as well as by reflex action, the nerves of taste, the glosso-pharyngeal, and the lingual or gustatory? Was not the tongue the stimulation that produced the irritation?

I am indebted to Dr. T. Wesley Mills, Professor of Physiology McGill College, Montreal, for the following hasty notes on the above:—

Case of Nausea Produced Reflexly.—In this case there seems to be little doubt but that the afferent impulses travelled from the tongue by way of the fifth nerve, were the sources of the nausea. The tongue is very readily affected by all foreign sensations, such as that referred to in the account of the present interesting case. But as the nature of reflex depends not only on the *quality*, intensity, site, etc., of the stimulus, but very largely on the *contraction of the central cells* acting as centre, it becomes a question whether in the present instance there was increased excitability (activity) of the nerve endings, of the nerve itself, the central cells, or all of these. Many facts go to show, that the central cells are of most importance in determining the issue, as witness the readiness with which cerebral events (emotions, recollections) cause nausea.

The case in question seems to me to illustrate this aspect of the subject. As in the case of other centres, so in this instance, the *tetanus* "vomiting centre" had, partly from repeated stimulating and partly from cerebral influences, become irritable, *i.e.*, discharged impulses with undue readiness. This centre seems to be especially liable to get into this condition, so that even a vomiting (or regurgitating) habit may be formed.

Mistaken Diagnosis.

By Ed. L. Fairley, L.D.S.

An interesting case of mistaken diagnosis by two surgeons in New York, came under my notice recently. Miss E., aged 29, came to me about some carious teeth in the upper jaw of the right side. Noticing a large swelling on the left side of the same jaw, I inquired as to its history. The patient was more than usually intelligent on the subject. It had first attracted the attention of a surgeon a year ago, who declared it was an osseous tumor; then last July, of another who said it was a cystic tumor; both holding that a surgical operation for removal would be necessary. There were no decayed or undeveloped teeth on that side of the jaw; no functional disturbance; no congestion of the gums; no pain. About a year ago a slight pain had been felt in the first molar, but it was said to be entirely sympathetic. In the meantime the so-called "tumor" was slowly growing in size. The patient got so accustomed to its presence that I fancy she rather cherished it, and would not have thought any more for the present about it, had I not warned her of its possibilities.

Upon examination, I found imperfect calcification of the first molar, and the indications of a dead pulp, but very slight response to tapping. A cavity was drilled through the crown into the pulp cavity. The pulp was mummified and dry as punk. The canals of both roots were enlarged down to and through the apex; and by the use of peroxide of hydrogen and the usual treatment, I treated the tooth which was the cause of all the trouble. The swelling was reduced in a few weeks.

Societies.

Notes from Proceedings of Dental Societies.

BRITISH DENTAL ASSOCIATION.—We enjoyed the privilege of attending the annual meeting of the British Dental Association, in Dublin, on the 23rd, 24th and 25th of last August. As a business arrangement it was a remarkable success, everything running systematically and in order. Reception, Demonstration, and other Committees were organized, and an Annual Museum Committee, which was unique and exceptionally successful. Under the presidency of the genial Mr. Daniel Corbett, of Dublin, and the efficient assistance of Messrs. R. Theodore Stack and Mr. Booth Pearsall, the meeting was in every sense an event of great importance in the history of British dentistry, and excelled anything of the kind we have ever seen among our

American cousins. The annual dinner was simply magnificent. The museum comprised four sections, divided into (1) Manufactures, being exhibitions by British manufacturers ; (2) Literature, journals, monographs, handbooks, etc. ; (3) Surgical Specimens in small bottles, of odontomes, enamel nodules, supplemental cusps, degeneration of wisdom teeth, supernumerary teeth, abnormal roots, missing roots, fusion of roots, oblique teeth, dilaceration, germination of teeth, macrodonts, microdonts, exostosis, fractures, etc. In all there were 1685 specimens, including syphilitic and mercurial teeth, cleft palate, tumors, and preparations of comparative anatomy. The printed catalogue of the museum comprised 72 pages. There were 80 microscopes exhibited, showing specimens of oral anatomy, comparative and oral pathology, etc. Trinity College lent its magnificent rooms, and the dinner was held in the Royal College of Surgeons.

The annual meeting was in every respect a success. We can only give a hasty resume of the proceedings ; but we shall in each issue keep our readers acquainted with the regular work of the Association.

Mr. Geo. Cunningham, of Cambridge, read a report with regard to the "Dental Aspect of Public Health," in which he drew attention to the condition of the teeth in the army and navy. It will likely result in a practical plan for examining and attending to the teeth of recruits passing through the recruiting depots, as well as the appointment of dentists in two branches of the service. Mr. Foster, of Dundee, read a report recommending that attention to the teeth of school children should be compulsory. Mr. Brownlee, the retiring president, delivered his valedictory, and Mr. Daniel Corbett, his successor, read his inaugural address, in which he gracefully complimented Mr. Booth Pearsall, Mr. Stark and Mr. Baker, for their laborious attention in the organization of the museum. He also gave a retrospect of his early career. "Six weeks was the usual time spent in the manufacture of a complete denture. When working bone and natural teeth, each tooth was drilled through the pulp chamber, a silver tap was screwed into it of required length, and rivetted, in the ordeal the tooth often split in consequence of its dryness. When human teeth were the fashion, they were usually had from the graveyard, and I recollect what attention was paid the grave-digger, at his periodical visits to my father's house with his gleanings from the coffin. His visits were generally at night, and no hospitable duty in which my father might chance to engage was permitted to interfere with the reception of this ever welcome visitor to the 'sanctum sanctorum' of the house." His father introduced into Ireland in 1829 composition teeth, then called "Teno Metallic Teeth." In 1832, a Mr. Hallett called upon him and introduced a new form of mineral tooth, the tube tooth. In 1837 Mr. Corbett's brother gave the information to Ash & Sons, which led to their production of mineral teeth." It was alone worth a visit to Dublin to see and hear the warm-hearted President.

Dr. R. Theo. Stack (Dublin) read a paper on "Dental Ethics," embracing the whole duty of the dentist towards his patient and his confrere. Dr. Corley read a paper on "Anæsthetics in Dental Surgery," treating of chloroform, ether, and nitrous oxide, showing a decreasing ratio of casualties owing to increased knowledge and skill. The importance of knowing the state of the heart, watching its action, and taking care that all the precautions required for maintaining its action, or restoring in cases of failure, were mentioned. The danger with ether originates in the lungs and brain. He preferred it to chloroform. Mr. King referred to a case where ether was administered *per rectum*, the patient being under the influence in seven minutes, the operation being over in twenty minutes. The ether was boiled. The effect was complete.

The second day's proceedings were very interesting. Dr. Walker (London) showed plaster casts demonstrating the relative contraction, expansion, etc., when mixed with hot and cold water, also with a solution of salt, potash, etc. Various demonstrations of dry steam vulcanizers, cleft palate, artificial nose were shown. Mr. Geo. Cunningham demonstrated implantation. Messrs. Balkwill, Rhodes, R. H. Woodhouse, T. Cooke Parson, R. F. H. King, Alfred Jones, Wm. Woodruff, Wm. Fernald, Lloyd Williams executed gold fillings, with hand pressure, all kinds of mallets and all sorts of gold. This part of the meeting was very largely attended. Mr. W. Booth Pearsall read an interesting paper on "The use of the imagination in the design and construction of artificial teeth," in which he gave the manufacturers a well-deserved rap on the knuckles. Mr. A. I. Watts (Dublin) read a paper "On some work-room appliances," Mr. Murray (Dublin) on "The work-room section of the Museum and its contents." One of the most interesting papers was by Mr. Geo. Cunningham on "Implantation of Teeth." Mr. Cunningham exhibited a patient and carefully prepared diagrams, illustrating the several points of his paper. We shall refer to Mr. Cunningham's paper in another part of this journal. Mr. Kirby read a paper on "Some properties of amalgams." The discussions were well conducted. One could have spent weeks examining the Museum. Some well-known faces were absent, but the general success of the meeting was very encouraging. From our point of view, it gave us a great many hints from which our cousins over the border as well as Canadians might profit, and which we hope, from time to time, to bring before their notice.

The British Dental Association has eight separate branches, each branch having its own officers and meetings, but holding a general meeting annually. Its membership is nearly 800. It is the true governing body of the three kingdoms and must eventually include every respectable licentiate in its ranks. Its organ, the *Journal of the British Dental Association*, is conducted with great ability by Mr. A. S. Underwood, whom it was one of our great

pleasures to meet in Dublin. The next meet of the Association will be held at Brighton next August.

FIFTH, SIXTH, SEVENTH AND EIGHTH DISTRICTS DENTAL SOCIETIES OF NEW YORK STATE, SYRACUSE, OCT. 25TH, 26TH.—One of the most pleasant and profitable conventions which has been held for a long time, was that of the union meetings in Syracuse. The organization under the skilful and genial leadership of Drs. S. B. Palmer and G. L. Curtis, was all that could be desired. Among the foreign visiting guests the following were present from Canada :—Drs. J. B. Willmott, G. S. Caesar, C. V. Snellgrove, J. G. Roberts, and W. G. Beers. The paper of Dr. J. C. Curtis on “Chemistry an Important Feature in Dental Education,” assumed a practical character. He maintained that all dental caries is due to external causes, the substances brought in contact with them as food or medicine, or those resulting from decomposition of one or both. If sour apple or lemon or dilute acid is taken into the mouth, the teeth become what is termed “set on edge,” which means that the calcium of the tooth has been acted upon by the acid, forming a new compound, and leaving the organic parts unprotected. From decomposition of starchy foods results acetic acid, and from this by further fermentation, butyric acids. Nitrogenous substances, as lean meats, albumen and mucus, are converted by decomposition into acids of the nitric and nitrous groups. The normal period of the stomach contains hydrochloric acid, and in many cases of dyspepsia butyric acid is found ; while nitric, as sulphuric, sulphurous, nitro-hydrochloric, and hydrochloric acids are in use medicines. Of the organic acids, we have in apples, malic acid ; in plums, prunes, grapes and currants, tartaric acid ; in lemons, citric acid.

Whenever lean meats are allowed habitually to remain between teeth, decay ensues. This is explained by authorities as follows : “When nitrogenous organic matter is exposed to the air, the nitrogen assumes the form of ammonia ; but when alkalies, such as potash, soda or lime are present, a further slow oxidation takes place, and nitrates of these metals are formed.” In combatting the action of acids upon tooth-structure, an acid is always unsatisfied until it is combined with a base to produce a salt, so that instead of permitting the salt to be formed at the expense of tooth-structure, the base is supplied from outside, the problem is solved.

Happily, potassium, and magnesium have more affinity for acids than calcium. It is well established that an approximately decayed tooth, though ever so well filled, will again decay if subjected to the same influences as before it was treated. The conditions are changed in a measure by self-cleansing spaces, by contriving only the removal of one or more teeth ; but whatever means are employed, reliance is still placed on the saliva, because, first it acts mechanically in conjunction with the tongue, and second it is

alkaline and will neutralize acids with which it comes in contact. The teeth of smokers who take care of them are better preserved than those of non-smokers, because the salivary glands are stimulated to produce an abnormal quantity of saliva, and because a certain amount of creasote comes into the mouth with the smoke to retard fermentative action. Decay cannot occur in the presence of an alkali. Alkaline earths, as mouth-washes, are valuable.

Dr. Barrett admits the correctness of the merely chemical ideas, but they ignore later investigation. In the mouth we find the acids so diluted that the reactions do not always occur. Citric acid may produce the reaction noted; malic acid found in an apple is not strong enough to act on enamel. We used to talk of catalysis, but that question has been solved by the knowledge we now have of the fermentative organisms. Dr. Miller has shown that they produce acids, and that these are the cause of caries. Fermentation lies at the root of all dental chemistry.

Dr. Dwinelle said fermentation will account for much of the phenomena of caries which chemistry will not account for. He denied that decay is as apt to recur, as a rule, after the teeth are put into good condition.

Dr. Brophy disagreed with the statement that caries does not occur in alkaline conditions of the saliva. Some of most extreme cases of decay are found in mouths that are always alkaline. This is accounted for by the fact that lactic acid produced through the agency of fermentation is the most important factor in decay.

Dr. J. B. Willmott took exception to the explanation of the phenomenon of "setting the teeth on edge." He thought is a hyperæsthetic condition caused by the acids permeating the enamel, and acting as an irritant to the underlying dentine, the condition passing away as soon as the acids are washed out. He thought that it is only those acids which are formed in the mouth in actual contact with the teeth that act upon them, and that they act only when in the nascent condition; and that those acids which are taken into the mouth in fruits, etc., have no destructive action upon the tissues with which they are brought into contact. It has been pretty well established that the exciting cause of caries in the teeth is fermentative action, and that recurrence of caries after filling, may be better prevented by the use of germicides and antiseptic dentifrices than by the use of antacids.

Dr. J. C. Curtis believes where decay is found in alkaline mouths, there is a line which corresponds exactly with the location of the decay, where tests with litmus show that there are acids. He believes in the use of antiseptics—in those things which prevent fermentation—because they stop the formation of acids.

Dr. E. T. Darby referred to the experiments conducted by the late Dr. Wescott, showing the action of acids upon tooth structure. He found that all mineral and vegetable acids need not be of any great strength to

decalcify teeth. Even one part in one hundred was sufficient in most cases to corrode the surface. A tooth immersed in the juice of a lemon (citric acid) would soon lose its polished surface and assume a chalk-like appearance, and if let alone long enough would undergo a partial decalcification. Common cider vinegar (acetic acid) will corrode the surface of the enamel in forty-eight hours. If you would note the action of acid upon carbonate of lime, place a little lemon-juice or strong vinegar upon a marble slab and allow it to remain twenty-four hours. The polish is first destroyed, and then white powder may be scraped from the spot after the acid has evaporated. Dr. Brophy has spoken of the alkalinity which is shown to exist so frequently in some mouths. This may be true of some portions of the mouth. For instance, the product of the sub-maxillary, sub-lingual, and parotid glands may show, as they accumulate in the floor of the mouth, but if litmus paper were put into the cavities of carious teeth or in spaces where food has accumulated, the test would doubtless show an acid reaction. Fermentation is the great factor in producing caries of the teeth, and cleanliness, absolute cleanliness, about the only preventive. Dr. Miller has found that the micro-organisms of caries do not flourish in carbolic acid or bichloride of mercury. Neither are they in their element when in the forms of tobacco or in a decoction of that weed.

Dr. J. Curtis would like to know if the microbes do the work of destruction themselves, or do they generate an acid which does. He believes we always change the shape of a tooth when we fill it, or at least that we change the conditions which surround it, and that is why, when the work is properly done, the decay does not recur. The surfaces are made smoother, so that they can be kept clean more readily, and thus prevent fermentation from taking place.

Dr. John Van Duyn, Syracuse, addressed the convention on the subject of the "Abnormity of the Dentist's Eye." He said:

"The eye is the most important instrument which the dentist has. In some callings the hearing or other faculties are more useful, but in the practice of dentistry the eye is the all-important. In proportion as the eye of the dentist is defective, his usefulness is lessened. Some persons have trouble with their eyes from birth, others have difficulties which are acquired at various periods of their lives, at thirty, forty or fifty years. He would not go into a list of the troubles of the eye, but would only state a few of them. These are connected with refraction,—with the way the rays of light are disposed of after they enter the eye. [Dr. Van Duyn here drew upon the blackboard a diagram of the normal eye, which he explained.] When a ray of light enters the normal eye, what becomes of it? Those rays which strike the centre go straight through; if they strike above or below the centre they are refracted—he would not speak of the laws of refraction—so that all meet at a point upon the retina, which is called the focus. Such an eye is called emmetropic.

When the light rays are refracted in this way the eye sees, and vision is perfect. In an eye in which the antero-posterior portion is shortened, the focus comes behind the retina, and it is characterized by indistinct sight, the hypermetropic eye. There is another condition, just the opposite of this, in which the antero-posterior portion of the eye is too long. Here the light-rays focus before they reach the retina. This is the near-sighted, the myopic eye. There is still another condition, of which Dr. Marshall can tell you something, the irregular eye, the astigmatic eye. In this the meridian in one eye is normal, or hypermetropic, or myopic, and in the other, one of the other conditions is found. Any two of them may be combined. If it is a regular astigmatism—where one meridian is normal—the difficulty can be perfectly corrected by properly made glasses; but when it is irregular,—when neither eye is normal,—the correction can be only approximate. In this eye the focus is not a point but a line.

The correction of all these difficulties of vision is of course by means of glasses. When the eye has its focus too far back, the lines of the rays of light must be made to converge before they enter the eye; so we put on a convex glass. For the myopic eye, the focus must be thrown back; hence concave glasses are used to cause the rays to diverge, so that when they enter the eye they will be carried farther back than they would be without the glasses.

The hypermetropic and the astigmatic eye are congenital; the myopic is or it is not congenital. In the former case it is known; in the latter it may go on for years before the fact is discovered. When it is acquired or congenital the way to find it out is by comparison with normal sight. If it is found that the lens of the eye is imperfect so that one does not see, it must be changed. The sailor's eye, the keen vision of which is so often quoted, is not so good as the landsman's. The sailor will announce that the ship is approaching land long before the landsman aboard observes any sign of it. But it is not superior sight on the part of the sailor. He sees a mistiness, which his experience teaches him means that the land is near. With the hypermetropic eye there is not always a necessity for glasses, as when the condition exists in the young eye, because at five, ten, fifteen, or twenty years the lens is so soft in the lamellæ and the ciliary muscles so strong that a greater curve is given to the lens when looking at near objects, so that the defect is not noticeable, although the act of seeing in such cases is accompanied by muscular effort. As the person grows older the lens becomes harder and is less easily curved, so that at the age of thirty to forty or forty-five years the muscular effort required begins to be felt as a strain and glasses are required. Every eye becomes hypermetropic at the age of seventy or eighty years; that is, it loses the power of curving the lens. This curving of the lens is what is called "accommodation." When we look at an object at a distance and then at one nearer, the lens is curved more for the nearer object.

Applying these general principles to the eye of the dentist, it is readily seen that a fissure in the enamel so fine as is often found will require strain of the eyes to see it ; also, how important for the discovery upon the surface of the smallest points of the beginning of caries is perfect vision. Then, too, how is the approach of disease as disclosed by the shadows, by the depth of color, which we get by transmitted or reflected light, to be seen without it ? All these things are only appreciated by the finest vision. Two luminous points cannot be distinguished by the normal eye except they are separated by an angle of sixty seconds ; within that distance they seem as one. A few eyes can distinguish the difference at fifty seconds' separation, while others are so coarse that they require an interval of eighty or ninety seconds. In order to know, one must see, and persons who have not a sufficiently sensitive retina cannot know because they cannot see. Accuracy of vision depends upon the sensitiveness of the retina.

To go back to the emmetropic eye : let a man use the naked eye till he is forty years old in a pursuit which requires constant close application of sight, as in the practice of dentistry, and he will begin to feel the effects of fatigue on the eye. Sometimes the disturbance is in the eye itself, sometimes it is shown by headaches, and even by general weariness of the whole system. He is not sick, but he tires easily. This is due to the fact that the ciliary muscle is not able to do its work as formerly, and the strain is reflected. Just as soon as this occurs the retina loses sensitiveness, and just as soon as the sensitiveness is lost we do not see. So that it becomes necessary for a man intending to adopt the practice of dentistry to recognize that he must have perfect eyesight ; and it follows as a corollary that no one should enter the profession without first having a competent examination of his eyes. If he has astigmatism of a kind which cannot be corrected by the use of glasses, he should refrain from entering the profession. Again, if, having become a dentist, he finds, after reaching the age of thirty years, that his eyes become fatigued, he should periodically repair to the proper authority for examination. By such a course only can he avoid the troubles which are to be attributed to over-use of the eyes.

Dr. John S. Marshall, Chicago. Prof. Van Duyn never said a truer word than when he declared that the eye was the best instrument of the dentist. The dentist is usually very sensitive about his eyes. How many of them put on glasses willingly ? Dr. Marshall presumed that he was born with astigmatism. He was troubled with fatigue of the eye and general weariness all through his student life, and for twelve years after entering upon the practice of dentistry. He was completely broken down, and finally it was suggested that there might be trouble with his eyes. Prof. Van Duyn made an examination which disclosed the existence of horizontal stigmatism, and he prescribed the very glasses which the speaker has on to-day. There are probably

many here to-day who suffer from these troubles of the eye. They cannot get near enough to the patient's mouth to see the work properly, and when the day's work is done they go to their homes feeling worn out. A gentleman near Chicago thinks that dentists should use different glasses from those usually prescribed. He thinks they should wear prismatic glasses, because, as he says, the dentist has to get so close to his work that the normal eye cannot see without injury, and the effort causes a slight convergent squint. If they would get prismatic glasses the eye would look straight out. Dr. Black wears them with much satisfaction. If dentists would lay their pride aside and wear glasses whenever they are needed, they would be better off and their patients very much so. He had tried to get along with using them only a part of the time. One day he would wear them and feel no trouble. The next day without them he would feel the old sense of fatigue. Since wearing them continuously he had had no trouble. It is probable that some persons go to the age of fifty years without losing the power of accommodation. The majority of dentists probably suffer from some form of eye-trouble. It is likely that very few who have been in practice for ten years have perfect eyes. The reason for this is that a good deal of the dentist's work is done in the back of the mouth, where the light is poor under the most favorable circumstances.

Dr. Van Duyn thought that this would hardly correct the evil. It is probable that many of the defects of vision from which dentists suffer existed long before they became dentists, which only makes true what he had said as to the importance of the dentist knowing exactly what his eyes are.

Dr. J. Branstom Willmott, Toronto, Canada, would not venture to speak upon the subject, but that possibly the relation of his personal experience might prevent others from suffering a similar penalty for want of knowledge. He was born, he presumed, with a defect of vision,—congenital astigmatism,—but he did not find out until he was thirty-eight years of age. His eyes did not focus together, and when his sight began to fail he was troubled with a great twitching of the muscles of one eye, accompanied by considerable weakness. Before night came each day he would be wearied out, and sleep failed to restore him to his normal condition. His eyes were examined by an oculist, the difficulty discovered, and glasses were made to correct the astigmatism. The twitching ceased in one day after he began to wear them, and his health was soon restored to its normal tone. What was singular about the case was that about two years afterward the prescription glasses were broken, and since then he had used ordinary, though strong glasses, without any recurrence of the former symptoms. The wearing of the special glasses seemed to have cured his trouble entirely. He related these facts merely to emphasize the wisdom of consulting a specialist on the first indication of failing or defective vision.

Dr. Truman W. Brophy, Chicago, felt more than usual interest in the subject under discussion, because of the experience he had passed through during the past three or four years. Some four years ago his eyes began to grow weary toward the latter part of the day, and especially along towards the end of the week. He procured glasses, but the examination was not critical, and later it had to be done over. With the first glasses he found that on Monday he did not need them; on Tuesdays he used them a part of the day, and on Wednesdays and Thursdays from the time he began operating in the morning. During the remainder of the week he was troubled with headaches as before, in spite of the glasses. After two months of this kind of experience, he underwent a critical examination by a well-known oculist, who pronounced his eyes hypermetropic, and prescribed the proper glasses. The headaches disappeared at once on beginning to wear them, and he felt far better than for years. It would seem to be the part of wisdom for those who use the eyes much to get glasses early, not only to avoid distressing physical symptoms, but, what is of more importance, to preserve their eyesight through life. Prof. Van Duyn says that hypermetropia is usually congenital. The speaker is satisfied that he had none of it in his earlier years. One thing to which he would direct special attention as of the highest importance to dentists,—the necessity of not using the eyes in a bad light, as towards night. In having glasses made do not have the bows too tight, as by pinching the nose they will cause headache, but have them made to fit on loosely.

Dr. W. H. Dwinelle, New York. As to the question whether a large magnifying glass would correct the difficulty of poor sight, it might do so for the normal eye which was simply growing old; but it will do no good for the astigmatic eye. This trouble is only to be corrected by glasses for the eye. It has been stated that as we grow old the focus of the eye is carried farther back. It sometimes occurs that the sight of old persons is partly restored to the normal condition. This he had observed among several of his patients, one of whom was in his office recently, and her eyes were tested in reading the finest type used in printing. The theory is that in such cases the retina to some extent takes up the office of the ciliary muscles and so partially restores the lens to its normal condition. We can thus take up the office of the ciliary muscles at any time to some extent, and on this principle some have recommended the manipulation of the eye as a hygienic measure. John Quincy Adams always manipulated his eyes, and he never wore glasses. Dr. Dwinelle is satisfied from experience with his own eyes that this theory has at least a foundation in fact. We know that in the old the eye becomes flattened, which throws the focus out of place, and we can almost recognize near-sighted persons by the shape of the eye, which is much more rounded in the outward contour than the normal eye.

Dr. Marshall wished to offer a suggestion which followed out will afford

considerable rest to the eyes during an operation. We all know that when the eye is kept fixed on any one point for a considerable length of time, and more especially if the gaze is intent, it is very fatiguing to the muscles. If the dentist's office is so arranged that he can once in a while look away from his work to some object at a distance, he will find that from this simple act his eyes will be rested; and if he can make this a habit he will be very much benefited.

Dr. Brophy wanted to ask Prof. Van Duyn a question, and he would preface it by the statement that he thought the cause of the trouble with his eyes was a cross-light in his office. The question he would ask is, What light is best for the dentist, and is a cross-light detrimental?

Dr. Van Duyn. The best light comes not direct from the sun, but from a luminous sky or a light cloud. A north light from a cloud is best of all. A cross-light should never be used.—*Cosmos*.

(To be continued.)

Selections.

Electricity in Dentistry.

As an instance of the rapid march of science, and its adaptation to the varying needs of mankind, one would, perhaps, be inclined to place electricity in the very foremost rank; not only on account of the tremendous strides which it has of late taken as an abstract science, but more particularly in view of the fact that to it we owe so many of the material comforts which we are privileged to enjoy in these modern days, when Nature's secrets are being forfeited at a rate which would fairly have puzzled our more easy-going forefathers. Science has always ministered to the wants of man—to the alleviation of his sufferings, and to the amelioration of his condition. It has done much, in conjunction with art, for our own specialty; and it is, therefore, but reasonable that, in reviewing the large field of usefulness which electricity now covers, we should enquire as to any special benefits which it is capable of conferring upon dentistry, and seize upon them, in the interests both of ourselves and our patients.

One of the most formidable enemies of the dentist (especially if he be located in London) is light—or rather the absence of it—during a large portion of his working hours. To attempt delicate work in bad light is to court failure, to experience disappointment, and to tread that borderland where loss of self-control merges into despair. The electric light is doing much to lessen the gloom of our cities, and is eminently adapted to dental requirements from its peculiar advantages of brilliancy of illumination, absence of noxious pro-

ducts, and the definition of daylight hues of color. To those within reach of having this beautiful lighting power "laid on," there can be no excuse for not availing themselves of the boon—except it be that of expense. We understand, however, that the current is not suitable for purposes other than lighting; but, surely, this is an obstacle to be overcome in the future. To those who attempt anything beyond the casual use of a tiny oral lamp driven from a primary battery, disappointment comes sooner or later; and hosts of batteries, "guaranteed" to do the most marvellous work, have come and gone, like spectres of ill-fame. We are aware that a great amount of care and trouble in certain instances have yielded fair results, but if domestic lighting on a large scale had been feasible from primary batteries, we should have seen them in general use long ere this. The hope of the present appears to cling to secondary batteries or accumulators, but the storage necessary for lighting on anything like an adequate scale must prove a stumbling-block to the general adoption of this system.

In the direction of motors and mallets, things are certainly more promising, for a large section of our younger operators have utilized primary batteries for these purposes for some years with a fair amount of success. It took some time to familiarize the public with the dental engine, and it is not impossible even to-day to lay one's hands on both practitioners and patients, who are strongly prejudiced against its use. In like manner, it will take some time to overcome the prejudice which exists against the employment of motors, but in future we have no doubt that they will become very general, and will be appreciated as lessening the dentist's exertions, while performing their work with greater effect, and less discomfort to the patient. Water-power has its advocates for this purpose; but, whilst fully admitting its many advantages, yet we cannot ignore the fact that the general use of electricity for motor purposes in the future must also appeal to us, as being adequate, convenient, and economical. Meanwhile, we are casting about for suitable electrical motor power, and the principle of *storage* seems to be coming to the front. Should this method prove, after reasonable trial, to fulfil our requirements, the way will have been prepared for the more general utilization of dental motors.

If opinions differ as to the way we should drive our engines, the same is doubly true as to the methods of introducing gold; and even those who employ mallets are sharply divided as to the particular form of blow which should be given. The advocates of the electric mallet are, we believe, on the increase; and, although it will probably never become a universal idol, yet we venture to prophesy, that it will hold its own in years to come as a reliable adjunct to cohesive gold filling. Although the form of the mallet needs much improvement, yet we are more concerned at the present moment with a suitable power for working it. All those who have had any experience of primary batteries know something of the chagrin caused by failure of power in the

middle of a large filling, except reserve funds be requisitioned to help one over the stile.

Our remarks on motors will also apply to mallets, and a reliable power will be hailed with much pleasure, not only as a solution of much that is perplexing, but also as a medium of making more popular an instrument which deserves the attention of every student of dentistry.—*Record, London, Eng.*

Dentistry in Ontario.

The recent affiliation of the Royal College of Dental Surgeons of Ontario with the University of Toronto, and the formulating by that institute of a curriculum in dentistry leading up to the degree of Doctor of Dental Surgery, is the latest, and perhaps the most important, step in the development of the profession of dentistry in Ontario.

But little more than twenty years ago, dentistry in this Province had no claim to professional standing. Having no legal status, there was no standard of qualification, which students were required to reach. The only means of instruction was pupillage in the office of a dentist. In most cases the terms did not exceed from three to six months, sometimes even less, and the embryo dentist was let loose upon the community ignorant of the very elements of his calling. In the year 1865, a few of the most progressive men organized the Ontario Dental Association, which soon included in its membership more than half the dentists in Ontario.

Incorporation by statute was discussed, and arrangements made for application to the Legislature. The confederation of the provinces in 1867, with local legislatures having control of local matters, greatly facilitated this enterprise.

At the first session of the Ontario Legislature application was made in due form, and on March 4th, 1868, the "Act respecting Dentistry," incorporating the dentists of Ontario as the "Royal College of Dental Surgeons of Ontario," became law. This statute is the earliest efficient dental legislation in the world, although in 1841 an Act regulating the practice of dentistry was passed by the State Legislature of Alabama, which, however, does not appear to have been enforced.

The control of dentistry was placed in the hands of a Board of Directors elected biennially by the legally qualified practitioners, and which holds the same relation to dentistry that the Council of the College of Physicians and Surgeons of Ontario does to medicine. A curriculum fixing the term of pupillage, subjects of study and examination, was immediately prepared and put in force; and system and order commenced to evolve out of the chaos which had previously existed.

Since March, 1868, no one has been permitted to enter upon the practice of dentistry until he has been duly examined and licensed by the proper authority.

In 1872 a matriculation examination was established, and since 1882 this has approximated closely to that required by the College of Physicians and Surgeons.

In 1875 a School of Dentistry was established by the Board of Directors under the provisions of the Dental Act, and regular winter sessions have since been held.

The curriculum includes, besides dentistry proper, anatomy, physiology, chemistry, principles of medicine and surgery, histology, etc. The period of pupilage is three calendar years, under indentures with a Licentiate of Dental Surgery, including attendance on at least two full courses of lectures at the School of Dentistry.

The final examinations, conducted by the Board of Directors, are severe, and each year from fifteen to twenty-five per cent. fail to reach the standard. There are now on the books of the college 100 undergraduates, 54 of whom are in attendance at lectures in the School of Dentistry.

We learn that a considerable number of the graduates and senior students of the Royal College of Dental Surgeons purpose matriculating in the Dental Department of the University at an early date, with a view to presenting themselves at the first examination for the degree of D.D.S., which commences March 25th, 1889. The requirements of the curriculum are fully abreast of those of similar departments in the best American universities, and the high standard maintained in the other faculties of our university will no doubt be required in the Department of Dentistry.

We are sanguine that the impetus given to dental education in Ontario will fully justify the wisdom of the university authorities in the "new departure" which they have just made.—*The Canadian Practitioner*.

Petition of the Board of Examiners of Quebec to the Local Legislature.

To the Committee on Private Bills:

GENTLEMEN,—We, the undersigned, representing the Board of Examiners of the "Dental Association of the Province of Quebec," beg to oppose the applications for special and personal legislation, of———, against whom suits are now in procedure for illegal practice as Dentists in this Province. We respectfully submit that such legislation as these illegal practitioners demand, would be a violation of the constituted authority of the Board, as well as a gross injustice to our members and students, all of whom have

willingly confirmed to the provisions of the Act and the By-laws of the Association.

1. In the case of———, the applicant is an Ontario Licentiate; never had any claim of any kind as a Dentist in Quebec, any more than a Quebec Licentiate has in Ontario; but in open defiance of the Act, and repeated warnings from the Secretary of the Board, he established himself in this Province to the injury of regular and registered Licentiates. He has never offered to conform to the requirements exacted from other applicants, and has demanded exemptions without any claim whatever, never asked for by our own resident and regular students or practitioners. The Ontario Board, which preceded the Quebec Board by one year, excluded Quebec residents from any advantage in Ontario, and has refused to recognize the Quebec License. Three times it has justly prosecuted one of our Licentiates, who was in the habit of practising in Ontario two days in each month. Not one of the applicants from Ontario who applied for the Quebec License, offered to conform to the rules governing the profession in this Province, while the Quebec Licentiates, who obtained the Ontario License, only secured it by strict compliance with similar provisions of the Ontario law.

2. The applicant,———, has directly and indirectly done more injury to the profession than all other illegal practitioners put together. He was well aware of the established requirements to study and practice in Quebec long before he went to the United States. Upon his return, he applied personally to members of the Board; was given a copy of the Act and the By-laws, and was assured that while the actual time he had spent even in a foreign college, would receive the full recognition required by the By-laws, the same as if it had been spent in the Province, his qualifications were not equal to those required from resident applicants and registered students. Instead of making the least effort to comply with these equitable requirements, he, in conjunction with his brother and other parties, wrote abusive letters to the press, damaging to the personal, professional and official character of members of the Board, and tending to excite violent prejudice in the mind of the public by utterly baseless and untrue statements. So violently abusive and false was some of this correspondence, that it led to direct loss and injury to regular Licentiates in the vicinity where this party was openly defying the law. The applicant then opened an office in the immediate neighborhood of one of our regular Licentiates, who is also a graduate of the same College, but who had conformed to the requirements of the Act.

In his application for permission to appear before the Board without fulfilling the conditions placed upon regular applicants, he declared that he had passed "Three years" at College. We wish to point out that the "year" consists of only eight months, making *only twenty-four months*, instead of the forty-eight months passed by our own students. The applicant had no pre-

vious pupilage or practice. Our Quebec students have to pass a severe Matriculation Examination. This applicant asks for special exemption upon no reasonable pretext. He asks that his twenty-four months, without the registration obligatory, should be received as equivalent to the forty-eight of registered applicants.

Your Petitioners feel it necessary to show the malicious falsity of statements made publicly in the Press, by and in his interest, with reference to the system of education in Quebec. While compelling a Matriculation that will raise the educational standard of applicants, and exacting four years of studentship, Section 4, By-law 6, provides as follows : " If a student desires to attend a Dental College, the actual time of such attendance will be accepted as equivalent to the same period of studentship ; " and although a flourishing one exists in Toronto, the Board liberally extends the same recognition to the tuition or the diplomas of foreign schools, a courtesy not reciprocated. To encourage thorough training, the Quebec Act exempts Canadian Medical Graduates from all conditions, except examination upon Operative and Mechanical Dentistry and the payment of the fee ; while the Board, which is only constituted an examining body, assists the students in Clinical practical instruction, without any fee ; and has provided a system of gratuitous Hospital service for the public, which will be available without fee, to dental as well as medical students. Two of our Medical Universities have also given members of the Association special appointments to lecture on Dentistry applied to Medicine and Surgery, and it may be stated, that the lecturers receive no remuneration. Your Petitioners allude to these facts among others that might be cited, to show that the accusation of neglect on the part of the Association is not true ; and that the claim that the wants of the public can be relieved by granting these two law breakers private bills, is absurd and presumptuous.

The statement that the Board compels our students to remain the full four years in the office of the Licentiate is untrue. Page 8, Section 3, of the By-laws, distinctly states that students should confine their attention exclusively *for the first year* to the Laboratory, their reading to Mechanical Dentistry and Metallurgy, together with the study of the skull and jaws, and the Anatomical character of the teeth. Lectures in a Medical College upon Anatomy, Physiology, Chemistry, and Practical Dissection, with certified tickets, is required after the second year. The special practical and personal training under the guidance and in the practice of a Licentiate has been recognized as of inestimable value ; it is imperative in Britain and France, and is urged by the best men in the United States, and by none more forcibly than by the Faculties of the Dental Colleges. It is compulsory in Ontario, Manitoba and British Columbia ; yet in none of these Provinces are the provisions for the recognition of tuition elsewhere as liberal as in Quebec. It is a fact, however, that very few of our students fail to avail themselves of the best facul-

ties to obtain a special course in the operative branch, by taking the time out of their four years for attendance at College. The only exceptions are in the case of some of our French students, for reasons which will be mentioned further on. Yet the Clinical system provided by the Board, for students who cannot attend College, supplies practical tuition without fee. In the Primary branches, our students have invariably ranked much higher than applicants who had been trained in American schools. In the branches supplied by the Medical Colleges, the trained graduates of the American schools have, in every instance, ranked far below the students who obtained these branches at Laval, McGill, Victoria or Bishops' Universities. At this moment one third of our students, after fulfilling one or two years of their term, are attending Dental Colleges. Every one not at these Colleges, is in regular attendance at the course required by the Board in some of our Quebec Medical Colleges. Several are even taking the full four years Medical Course, intending to graduate in Medicine or Surgery before they graduate in Dentistry. Your Petitioners maintain that the future of such work must be more beneficial to the public than the loose system in the United States, which has only within the last few years been improved, but not until thousands of so-called Doctors of Dental Surgery had been manufactured in one session of a few months.

It would be impracticable yet in a Province like Quebec to organize a thoroughly efficient school, at which attendance could be justly compelled. The explanation is very simple. There is not the demand in our Province that exists over the border for Dentists in every village. A town like Three Rivers failed to support two. Half a dozen combined in many parts failed to support even one itinerant. Medical men in small localities do the emergent service of the Dentist. The numerical strength of the profession can never be anything like the equivalent in communities where Dental diseases are more prevalent. Several of our Licentiates, all graduates of Colleges, abandoned such places as Sherbrooke, Quebec, etc., for lack of support. It would be impossible too, to rival the advantages in the one branch of Operative Dentistry, of Colleges which possess large endowments, some of which every year have nearly half as many students as there are Dentists in the Dominion. The Quebec Board feel that in encouraging students to avail themselves of the special facilities natural to richer and more populous communities, it is acting in the best spirit both for the profession and the public; but to expect the profession in this Province, to maintain an efficient school, and compel—as would be necessary—the students' attendance, would not only be financially impossible at present, but unjust.

Your Petitioners, representing the profession in Quebec Province, would refer to the action of the "National Association of Examiners," a body representing all the American Dental Colleges. Of the thirty or more Dental

Colleges in the United States, only two are recognized in England. One College, the "Wisconsin," organized under the laws of the State of Wisconsin, 1880, and repudiated by the above associated body, has disposed of its Diploma for Twelve dollars, without attendance upon lectures. (One of these Diplomas obtained as a test and for curiosity by a Quebec Licentiate during residence in Delavan in 1882, accompanies this protest.) The above associated body passed a resolution in August, 1885, refusing to recognize the "Royal College of Dental Surgeons of Ontario," the only Dental College in Canada, then in its eleventh year, and now affiliated with the University of Toronto; thus placing it on a level with the disreputable one in Wisconsin, in spite of the fact that its Matriculation was 75 per cent. higher than that demanded by the above body, its period of studentship longer, and its course a complete course in Dentistry.

One of our chief Provincial difficulties has been the position of the French students, who are in the majority, and whose peculiar claims must not be ignored. The American Colleges insist upon a knowledge of the English language; the lectures and examinations, the journals and text-books are exclusively in English. French students are thus heavily handicapped unless they know English. The Quebec Board, realizing the numerical and financial weakness of the profession in the Province, feel that it has been doing the most justice in aiming in the past to develop our own Provincial talent, by securing text-books in French as has been done, and by having the Matriculation, the Medical lectures, the Dental Thesis, and the Examinations, entirely in the language of the candidate. The Board does not consider all of these difficulties insurmountable, but the demands of the Province will not warrant the establishment of two teaching bodies—one French and one English: and separated, would be numerically and financially an utter impossibility. Under our present system, which every year improves, the profession in Quebec founded the first Dental Journal in Canada; preceded every State but one in the American Union in legislative protection for the public; has more than quadrupled its strength since its incorporation, and is now elaborating further improved methods of Clinical instruction without any fee. In 1869, there were only eleven dentists in Montreal. To-day there are forty-three and two dental depots. The country parts have been supplied with all they appear able to support.

Your Petitioners, would respectfully complain that though the Association has been incorporated since 1869, it has never yet obtained the necessary power or protection granted to the profession in Ontario, Manitoba and British Columbia; and that it has had to spend too much of its energies in fruitless litigation, which has done more than anything else to frustrate progressive efforts. While in Ontario, the Legislature refused to allow unregistered applicants to obstruct necessary legislation, it has been permitted in

Quebec ; and every case which has involved the Association in litigation, and hampered its educational efforts, has been moved by outside applicants, asking exceptional alterations to suit their personal circumstances. The Board having had twenty years practical experience of the success of the system in vogue, and knowing the better service and protection afforded to the public by the restrictions placed upon the free entrance of travelling dentists from over the border, does not speak at random in declaring, that while it has made no sensational boast, it has organized the profession into a body as efficient for the public demand as anywhere else in the world. It receives not only the loyal support of its entire members, but of the Medical profession and the general public and Press. Its only obstruction has been from such parties as the two opposed applicants, and such local friends on the Press and at the Bar, as could be hired to secure their purpose.

The opposed applicants have been special offenders. They have not only openly violated and still violate the law, but they have boasted of their violation, and have done their share by their example, to educate a part of the community to believe, that each man may interpret and violate a law as he likes, if it happen to read counter to his abilities and ambition. It would be thought gross presumption if a burglar caught in the act, and against whom an action was pending, was to petition the Legislature to condone his crime, and honour and reward him for his criminality. Yet here we have two law-breakers asking to be made law-makers ; two men who have been in open defiance of a law which is as much a law of the land as the law against burglary, asking by special Bills to have their illegality made legal. They ask for exemptions as irregular applicants denied to regular applicants. They demand special privileges as possessors of foreign diplomas, never before asked for by those of our own students who likewise possess them ; and ask recognition for diplomas, from institutions which refuse to recognize those of Canada. This would be placing a premium upon education abroad, and a penalty upon education in Quebec. It would be recognizing no Matriculation, or a very superficial one, as equivalent to the severe one imposed in this Province. There are thousands of these American diplomas, which were granted in one session of a few months. The Association of Quebec has never once granted its License without full compliance with its rules. Neither of the opposed applicants could plead ignorance or want of opportunity ; but if two may be a law for themselves, so may two hundred. If those who have conformed to the law are to be over-ridden by those who are breaking it, neither professional nor political morality is safe. All that the Board demands from the opposed applicants is simple conformity to the established law, which every other applicant had and has to follow. If these rules are relaxed they might as we I be repealed, and the good work done for the public within the last twenty years, will be undone.

Your Petitioners respectfully beg your Committee to bear in mind that the Association has worked in complete harmony, French and English, and that conditions which apply to Ontario or any State of the American Union, where there is only one legal language, cannot apply to Quebec. In everything but one branch, the standard of Matriculation and study is higher in Quebec than in any part of the United States ; and the Board has every reason to believe that soon there will be nothing lacking.

Your Petitioners, therefore, respectfully beg that you will recommend in justice to the public and the profession, that the Legislature do not grant the petitions of———, against both of whom legal actions are now pending in the Civil Courts for breaches of the law.

And your Petitioners will ever pray, etc., etc.

C. F. F. TRESTLER, M.D., L.D.S.,

President.

L. J. B. LEBLANC,

Secretary.

MONTREAL.

Our Canadian College.

We attach so much importance to the work of the College, now in its fourteenth year, that we propose giving it special attention from time to time under the above heading. The dentists of Ontario have good reason to be proud of the position it has achieved. Canadian Universities are never in a hurry to throw their arms around every pleading applicant ; but the Toronto school has won its laurels, and will do even more than it has done to raise the standard of Canadian dentistry. We know very well that Dr. Willmott prefers success to praise, but a profession would be ungrateful that refused him his just due. To him specially, and to his colleagues, we are all in debt.

The following documents mark, perhaps, the most important epoch in dentistry in Ontario :

STATUTE OF TORONTO UNIVERSITY ESTABLISHING A "DEPARTMENT OF DENTISTRY," PASSED OCT. 19TH, 1888.

By the University of Toronto be it enacted :

Sec. 1. The Degree of Doctor of Dental Surgery (D.D.S.) will be conferred by the University of Toronto upon Students of Dentistry on compliance with the requirements of the Curriculum in Dentistry which may from time to time be prescribed by the Senate.

MATRICULATION.

Sec. 2. Candidates for the Degree of D.D.S. must pass the Matriculation Examination hereinafter mentioned, unless,

1st. They possess a degree in Arts (not being an honorary degree) from some recognized University; or

2nd. Have already matriculated in the Faculty of Arts, or the Faculty of Law, or the Faculty of Medicine in this or some other University in Canada; or

3rd. Are Matriculants in the College of Physicians and Surgeons of Ontario; or

4th. Have passed the 1st, 2nd, or 3rd Class Departmental non-professional examinations in which the Latin option has been taken.

Candidates not possessing any of the above named qualifications, will require to pass the examination prescribed for matriculants in the Faculty of Medicine in this University, provided always, that candidates registered as Matriculants of the Royal College of Dental Surgeons of Ontario, on the first day of November, A.D. 1888, shall be admitted Matriculants in the Department of Dentistry.

UNDERGRADUATES.

Sec. 3. Undergraduates (candidates for the degree) residents of the Province of Ontario, must have complied with all the requirements, prescribed from time to time by the Board of Directors of the Royal College of Dental Surgeons of Ontario, for admission to examination for a Certificate of License to practice Dentistry in Ontario.

Sec. 4. Undergraduates (candidates for the degree) not resident in Ontario, must:—

(1) Have devoted at least three full calendar years (not being engaged in any other business) to the study of dentistry.

(2) Must have attended at least two full courses of lectures, embracing all the subjects of the curriculum of not less than five months each, exclusive of the time occupied in examination, and including the daily Clinic at a Dental School recognised by this University; the last of which must be at the School of Dentistry of the Royal College of Dental Surgeons of Ontario.

(3) Must have spent that portion of the time, when not in attendance at lectures and clinics at a school of dentistry, as a student in the office of a reputable dentist.

EXAMINATIONS.

Sec. 5. Candidates for the degree must pass two examinations: an Intermediate and a Final, an interval of not less than one year intervening between them. Until further provision be made a certificate of having passed the Intermediate Examination of the Royal College of Dental Surgeons of Ontario will be accepted by this University.

Sec. 6. Applicants for the final examination must present to the Registrar satisfactory certificates, covering all the requirements of sections three or four of this statute, and of having passed the intermediate examination.

Sec. 7. The subjects for final examinations will be

(a) Theory and Practice of Operative Dentistry.

(b) Theory and Practice of Dental Prosthetics.

(These examinations will be partly written, partly oral, and partly practical.)

(c) Dental Pathology.

(d) Dental Histology.

(e) Principles and Practice of Medicine and Surgery as applied in Dentistry.

(g) Dental Materia Medica and Therapeutics.

(h) General Anatomy and Special Anatomy of Head and Neck.

(i) Physiology.

(k) Chemistry.

These examinations shall be written.

Sec. 8. No candidate shall be considered as having passed the examination who has not obtained 50 per cent. of the marks allotted; nor will a candidate be considered passed in any individual subject who has not obtained at least $33\frac{1}{3}$ per cent. of the marks allotted to each subject.

Sec. 9. The fee for matriculation examination shall be five dollars.

The fee for registration of a certificate accepted in lieu of said examination shall be five dollars.

The fee for final examination shall be five dollars.

The fee for the degree of D.D.S. shall be twenty dollars.

No fee shall be charged for transferring from any Faculty of this University to the Department of Dentistry.

ROYAL COLLEGE OF DENTAL SURGEONS OF ONTARIO,

DEAR SIR:

TORONTO, NOV. 15TH, 1888.

The Directors of the Royal College of Dental Surgeons of Ontario are pleased to be able to inform you that the University of Toronto has established a Curriculum of Dentistry, on compliance with which students of dentistry will have conferred on them by the University the degree of Doctor of Dental Surgery.

The arrangement with the University provides that all matriculants of the R.C.D.S., registered as such on or before the first day of November, 1888, shall be admitted as matriculants in the Dental Department of the University on presenting to the Registrar the certificate of the Secretary of the R.C.D.S. to that effect, and payment of the fee of five dollars.

Any graduate of the R.C.D.S., or any undergraduate, who is admitted to examination for L.D.S. in March, 1889, who matriculates in the Dental Department of the University before, say, February 1st, 1889, will be eligible for the examination for the degree of D.D.S. which commences March 25th, 1889, provided that at least three weeks before that date he has deposited

with the Registrar of the University his application for examination and the certificates required by the University and the examination fee of five dollars.

The certificates required with the application for examination will be those of the Secretary of the R.C.D.S. that the applicant has passed the intermediate examination of the College, and has complied with all the requirements prescribed by the directors of the R.C.D.S. for admission to examination for a certificate of license to practice dentistry in Ontario.

The subjects for final examination will be :

(a) Theory and Practice of Operative Dentistry.

(b) Theory and Practice of Dental Prosthetics.

These examinations will be partly written, partly oral, and partly practical.

(c) Dental Pathology.

(d) Dental Histology.

(e) Principles and Practice of Medicine and Surgery as applied in Dentistry.

(g) Dental Materia Medica and Therapeutics.

(h) General Anatomy and Special Anatomy of Head and Neck.

(i) Physiology.

(k) Chemistry.

These examinations shall be written.

The practical work required will probably be similar to that required for the examination for L.D.S.

No candidate shall be considered as having passed the examination who has not obtained 50 per cent, of the marks allotted ; nor will a candidate be considered as passed in any individual subject who has not obtained at least 33½ per cent. of the marks allotted to each subject.

The fee for the degree of D.D.S. will be twenty dollars.

Yours very truly,

J. BRANTSON WILLMOTT,

Sec'y of R.C.D.S. of Ont.

STUDENTS IN ATTENDANCE AT THE SCHOOL OF DENTISTRY OF THE R.C.D.S.
OF TORONTO, SESSION 1887-8.

A. F. Webster,	J. L. Young,	A. H. Hipple,	S. Moyer,
J. F. Simpson,	T. E. Bruce,	A. Rose,	O. Martin,
M. G. MacElhinney,	J. E. Armstrong,	A. F. Pearson,	J. Bower,
J. J. Kerr,	W. H. Steele,	S. Burns,	J. J. Wisser,
E. Cunningham,	A. J. Smith,	C. M. French,	G. P. Allen,
F. J. Kennedy,	J. Letherdale,	M. F. Binkley,	G. W. Lloyd,
R. G. McLaughlin,	J. W. Oakley,	S. A. Aykroyd,	J. W. Swarm,
W. W. McPhee,	J. W. B. Topp,	A. E. Sangster,	F. Butler,
C. Ferguson,	W. R. Hamilton,	A. A. Shaw,	G. F. Bilden,
A. J. Edwards,	C. S. McLean,	G.P. Matthewman,	G. F. Wright,

H. P. Martin,	E. H. Edit,	B. Gallop,	N. W. Cleary,
H. E. Harris,	T. D. Fawcett,	C. A. Risk,	M. Cavanagh,
M. W. Sparrow,	J. T. Ireland,	G. McDonald,	J. F. Chittenden,
W. J. Trotter,			

DENTISTS AT DINNER.

The Faculty and students of the School of Dentistry enjoyed their fourth annual dinner in the Rossin House on the evening of the 24th November, and the gathering was one of the most interesting of its kind held this season. The recent affiliation of the school with the Toronto University as the Royal College of Dental Surgeons was the topic of the evening, and the different speakers alluded to the fact as one of the most eventful in the history of Provincial higher education. The dinner was got up in the most approved manner, everything being of the choicest, and the sixty students present had a good time, without being unnecessarily hilarious.

The chair was occupied by Mr. A. H. Hipple, and the guests on either side were Hon. G. W. Ross, Principal Thos. Kirkland, Rev. Dr. Stafford, Dr. Adam Wright, Dr. R. A. Reeve, Dr. J. B. Willmott (dean of the school) and M. C. Dewar, Trinity Medical, and Mr. Maybury, University Medical School, representing these schools. The vice-chairs were occupied by Messrs. J. W. Oakley and T. Butler, and Mr. S. J. Wisser discharged the duties of secretary.

Letters of regret at their inability to be present were read from Mayor Clarke, Toronto, Prof. J. Taft, (dean Dental Department of the University of Michigan), Dr. W. G. Beers, Montreal, and Dr. G. L. Curtis, Syracuse, N. Y.

The chairman, in his opening remarks, referred to the progress made in dental surgery in the Province. They had now an established college in affiliation with the University of Toronto, and their course had been lengthened to three years. He spoke in high praise of Dr. J. B. Willmott, whom he characterised as the pioneer of dental education in Ontario. The reference was received with cheers.

The speakers to the toast of "Educational Institutions" were introduced in a few well-chosen words by Dr. W. T. Stuart. Hon. G. W. Ross dealt with the school system of Ontario, and reminded the students that they had cut their educational teeth in the Public schools. He claimed that the facilities in Ontario for secondary or High schools were more complete than in any other country in the world. He referred to the Dental College as the youngest child of the educational family of Ontario, and concluded by expressing the hope that the young men present would become able exponents of dental surgery.

Principal Thos. Kirkland, of the Normal School, said that the dental students were more indebted to the Normal than they might care to acknowledge. He caused some amusement by attributing all the punctuality in the country to a Normal school training, and he remarked that he had no

doubt but that the dental students would make themselves "felt" in the world.

Dr. Teskey proposed the toast of the "University of Toronto," and introduced Dr. Adam Wright. The latter expressed a deep interest in the "baby," and remarked that in his opinion it was the best in town. He said that he had the honor of being chairman of the University Committee that had in hand the admittance of the dental college to affiliation. There had been some objection in the Senate at first until they began to realize that the dentists would be a credit to them. He referred in complimentary terms to Dr. Willmott's labors on behalf of dental education.

Rev. Dr. Stafford, speaking for the professions, expressed pleasure in the growing intimacy and friendship of the students of the different colleges. Among the various difficulties of life he thought trying to talk without teeth was about the worst. He created amusement by referring to sermons as one of the best remedies for sleeplessness.

Dr. R. A. Reeve said that he felt quite at home among the students of dentistry, because, like them, his time was chiefly occupied with the parts supplied by the fifth nerve. The condition of the teeth depended upon the general condition of the system, and dentists were therefore closely related to the medical profession. He urged the young men not to allow their education to be one-sided, but to aim at an all-round knowledge of the human system, which would better fit them to be leaders in their special branch.

Dr. Willmott was heartily received by the students. He gave his hearers some very good advice, especially urging them to avoid quack advertising, and reminding them that the future of the college was entirely in their own hands. Before concluding he announced that a Canadian dental journal was about to be published quarterly.

Short addresses were also made by Dr. Spalding, Dr. J. G. Roberts. Dr. Stretton (Guelph), M. C. Dewar, Mr. Maybury, C. A. Risk and others, and at intervals during the evening the students sang a number of college songs.

Editorial.

Business Notice.

This Journal absorbs the *Canada Journal of Dental Science*. For the present, it will be issued quarterly, at \$1.00 a year, in advance. Subscriptions, advertisements, and all business communications must be sent to DOMINION DENTAL JOURNAL, Box 298, Toronto. All communications relating to the editorial department, exchanges, and books for review, must be sent to

the editor, Mr. GEO. BEERS, P.O. Box 126, Montreal. The JOURNAL will be conducted on strict business principles; will be issued promptly on the 15th of January, April, July and October.

What a fairly comfortable world this would be to live in, if people never procrastinated. And how much easier journalism would be, if subscribers would sit down at once before they forget it, and send the publisher their subscriptions. Even the journals which could be given away *because they are such good advertising mediums for their publishers*, enforce payment on receipt of the first number, unless there is a running account. Let our friends in Canada do their small share promptly. We shall do ours. In the middle, or at the close of a volume, many send for the back numbers. It is not possible to print upon speculation. We hope to make this journal, the only one in Canada, well worth much more than its price. If any one who receives this, does not think so, would he return the number, with his name and address, to the publisher?

The Outlook.

As no man or woman longs more to be wed than a widower or a widow, so no people feel more the want of a journal than a people who had one and who lost one. The pioneer venture, born in Montreal in 1868, was necessarily experimental. But it gave us at least two thousand, three hundred and seventy-four pages of dental literature, as the first Canadian installment. There was nothing exceptional in the vicissitudes of the C. J. D. S. It was but a repetition of the story of dental journalism everywhere. Subscribers, however, got all they paid for; and the founder got a lesson he neither forgets nor regrets. The attempt to publish as well as edit a monthly, amid the demands of an active practice, will not be repeated. A publishing company has been organized in Toronto under the name of the DOMINION DENTAL JOURNAL Publishing Co., and the editor, freed from all financial responsibility, has nothing to do with the business department.

The Canadian profession has nearly doubled since the first issue of the *Canada Journal of Dental Science*. A few years ago Manitoba and British Columbia were isolated and comparatively unknown. Now they are splendid and progressive provinces of our great Confederation, and they not only have their increasing corps of dentists, but both provinces have passed Acts incorporating the profession. Quebec pokes along in its hereditary old way, caring more to build churches than colleges, and believing that a dead

saint is better than a living sinner. Nova Scotia, New Brunswick and Prince Edward Island have not yet passed legislative enactments. Newfoundland, though not yet of us, is sure to be with us. But grand old Ontario leads the way like a lion among the Provinces, and there the want of a home journal has been felt, as a man who has lost four wives might pine for a fifth. No foreign journal, however generous, can do the work of a home periodical. We have local wants, and perhaps family grievances, and nobody outside wants to meddle in our worries, though we always invite them to share in our joys. While, too, we should have no sectionalism in science, and should subscribe to journals in England and the States, "charity begins at home." The profession is awake in Canada, and the man who wrote us in 1868, that he thought a dental journal would be a curse to "the profession," told some truth. It obliged him to move aside when he refused to move on, and to-day he opens a gate on a railroad, and the men who moved on have got his practice.

There are people and papers that have no right to live. They both live in spite of moral right. Many a dog is of more use in the world, and would be more missed than many a man. Many a paper has no more "right" to live than sin. What right has this journal to live? The best right in the world—that Canada wants its own; that our students as well as our Licentiates want it; that the profession in the provinces not incorporated need it; that if twenty can live over the lines, one can live here.

We hope to muster every dentist in the Dominion in our ranks. We had many good friends in the old country whom we hope to hear from. And though we will never hearken to the wooing of political lovers next door, woo they ever so warmly; and though we will not get a divorce from our solid old spouse John Bull, we shall expect many a neighborly call from generous Brother Jonathan. We love to love him, but we were never intended for each other, but as staunch friends and kinsmen.

THE "SAMPLE COPY" MAN.—In the old C. J. D. S. we once alluded to a prominent public man of extremely mean conduct, who regaled his New Year visitors with wine he had obtained as samples. There are no doubt perfectly honest people who send for sample copies and who ought to get them, but the business of getting, then selling old and new magazines has been developed to such an extent that one or two firms in the United States have grown rich out of the profits. Any one who sends for a sample copy of this journal, after the receipt of this number and who does not wish to be mistaken for a dead-beat, will please enclose a sample of the twenty-five-cent currency of the country to which they belong.

Of Age.

It was one of the coincidences of the birth of dental legislation in Ontario, that it was contemporaneous with the birth of the Dominion. When our Canadian statesmen were in session discussing the corporation of the Provinces, a convention of dentists met in Toronto to consider the organization and legislative government of our profession. The first convention was held in Toronto in January, 1867. The Dominion of Canada was born on the 1st of July of the same year. The first meeting of the Dental Association of Ontario was held in Cobourg in July; the next session in Toronto on the 21st, 22nd and 23rd of January, 1868. The Act respecting Dentistry was read for the first time in the Local Legislature on the 30th of January, and finally became law on the 3rd of March. So that this issue of the JOURNAL celebrates the 21st natal day of the profession. What better way could every dentist in the Dominion, who loves his land and his profession, commemorate the event than by a practical support of the revival of our Canadian dental journalism.

Every new effort in any sphere meets with some opposition. There are very few, if any, of the well-meaning men who suspected the motives of the pioneers of 1867 who feel to-day as they felt then. Most of them have loyally followed the lead; some of them have become leaders. Here and there, perhaps, one finds a relic of the old dog in the manger, whose last breath, let us pray, may not breathe egoism. But the bulk of the profession realize that however fallible and imperfect were the founders of our Canadian dental legislation and education, they were sincere and honest, and did good work that no apparent partizanship can remove. There are many in active practice too old or too busy ever to share personally in the privilege now offered in Ontario in the way of dental education; but everyone who remembers dentistry as it was twenty-five years ago, and as it is to-day, must rejoice that they can now claim a social and scientific status for their profession it never possessed before. Each one of us who shared in the work from the beginning, some of us only in the first year of our practice, can take a happy retrospect of the difficulties of the past, and feel proud of having smoothed the way of those who came after. The old school, who knew little physiology and less pathology, were not to blame. Dentists in their time were made out of beeswax, plaster and moulding sand, and it was thought a waste of time to study books when models and human mouths were at hand. Who that remembers the old secrecy of suspicion; the plodding and plotting to get knowledge; the unrestrained access to the ranks: who that remembers this, regrets the picture presented to us to-day.

The School of Dentistry of the Royal College of Dental Surgery, now in its 14th session, has had a career memorable in our professional annals. Its

affiliation with the University of Toronto marks an epoch of which the whole profession should be proud, as dentists and as Canadians. We believe that the Directors of the R.C.D.S. have done a noble work in this direction that will give an impetus to higher professional education throughout the whole Dominion.

A Dominion Dental Society.

There are various reasons why Dental Societies, as a rule, have not flourished in Canada. There are few, if any, meeting anywhere which are free from objections; and we do not hesitate to declare that a fair proportion do not fully compensate a busy practitioner, for the expenditure of a large amount of time and money. The Journals may be unconsciously to blame in part. They publish all the papers and the best of the discussions. The clinics are apt to be unsystematic and crowded, and unless one is very pushing, and gets and holds one of the very few points from which they can be fairly witnessed, he might as well be looking at the moon. It seems to us it would not be improper to classify the visitors in some way, so that each in turn could pass before the operator, and have even two minutes or more uninterrupted study and examination of the case. We have never seen the matter so well managed anywhere as it was at the Dublin meeting of the British Dental Association. The officers were railed off in squares, leaving more space than can be obtained where a few are allowed to close in and monopolize all that is to be seen. But even there, it sometimes failed, when the natural anxiety of everybody, to see such interesting clinics as Dr. Cunningham. Implantations only gave a few a good opportunity. If the members present were placed in Indian file, and took their turn, everybody would see something, and those who did not wish to fall into line again, would make more time for those who did. It is not fair play to give all the exhibition to one or two, however devoted they may be. This is one of the grievances of the grumblers who do not believe in conventions.

Another grievance is that most of the papers are too long. It is easy to remedy that by limiting their length, giving the essayist the privilege of adding to his paper before publication.

Another grievance is that some of the essayists do not only begin at the beginning of their subject, as if nobody else had the most rudimentary ideas, but they literally begin at the beginning of creation, and in discussing a diseased pulp, bring in everything they can think of in science, theology, philosophy, etc. There is too much straining after effect, which generally ends in wearisome effusions about everything but the subject. We can point to many prominent offenders, who run over the gamut of all they know about everything before they get to the point of what they know about their subject.

These faults are rarely absent from any convention, and the quiet, thinking men who go to learn, too often end in staying away for the same purpose.

But say the most about the worst, there is a gratification and a compensation in meeting each other face to face, in the quiet exchange of thought and sentiment not on the programme; in the practical advantages gained by personal interviews with inventors; in the inspiration which all lovers of truth, receive from the grasp of a kindly hand, the look of a sympathetic eye, and above all and beyond all, in quietly discovering how much less we know than is known; how much wisdom abounds that does not belong to us; how much better and nobler we could each be, if we would come together as learners rather than conceited teachers.

Canada is now a Dominion of which we, as dentists, may well be proud. It is no discredit to us that our population is smaller than our neighbors. Thank heaven, we have not the burden of problems arising from the existence of a large part of that population. But we are strong enough, as a united body, to organize one Dominion Dental Society. We have good and active men from Halifax to Vancouver. The time is ripe for just such an organization. We can discuss our Provincial positions and endeavor to harmonize them. We could have a perfect carnival of clinics, and a feast of reason that would do us good.

Based upon the method of the British Dental Association, the organization would become a powerful factor in the land. There is no reason why the attempt should not be made at once within our own Dominion, to establish this Society. Will our friends from Nova Scotia and British Columbia let us hear from them? What say you to a Dominion meeting to be held in Toronto early the coming summer?

A Dominion Dental College.

It is greatly to our credit that all the dentists in Canada do not want to become professors and founders of dental colleges *ad nauseam*. The petition on another page, of the Quebec Board will explain the present difficulties in a Province where two legal languages exist. None of the other provinces have numerical representation sufficient to justify the establishment of a well-equipped college. But there is no reason why an affiliation could not be arranged between us so that the Toronto College would accept a certain part of the teaching in the other provinces, and become the centre of graduation for all Canada, granting the degree of D.D.S. of the University of Toronto, which will yet be as proud a degree to possess as its medical degree. Let us have one efficient institution, and be in no hurry to multiply for the mere sake of multiplication.

Legalizing Illegality.

Just now the Board of Examiners of Quebec Province are having a lively time with illegal practitioners. It has rarely had a rest from litigation, owing to the necessity that exists of supporting the army of lawyers who live by the mistakes and miseries of mankind, and whose condition is chiefly considered in most of the legislation that is accomplished at Quebec.

Two birds of a feather, with no claim whatever to consideration, have openly defied the Act for some time—one for several years. At last they were prosecuted, and pending the actions against them, they apply to the Local Legislature, with all the cheek of accomplished presumption, to make their illegality legal. They ask for exceptional privileges as possessors of foreign diplomas, denied to Quebec and residents, and expect recognition for institutions which refuse to recognize the licenses of Ontario or Quebec. It would not at all surprise us if they succeeded in riding rough-shod over our resident students, though they will have to fight for it. If one's family influence in a county can be brought to bear upon some of our noble specimens of Provincial legislators, there is nothing too monstrous that cannot find its mouth-piece. The morality of a question is not measured by its injustice, but by the effect it may have in securing or losing a few votes. In the next number we shall give our readers full particulars of the result.

Rash Reasoning in Dental Science.

One of the first steps toward true knowledge, is to know how little we know. One of the next is not to mistake our own convictions in matters of science for infallible truth; for, however honest, they may be as false and foolish as if they were forged. When searching in the obscurity with which Nature has wisely concealed her secrets, one must blunder and stumble over many obstacles; but while "to err is human," "to try is glorious," and no honest effort is wasted, though it may fail. Many a great idea was conceived in the womb of failure and even despair. As in the material world, so in the world of thought and reason, there is nothing lost or wasted; and no matter how often or how finally we miss success, there has been, or will be, compensation in the effort. And yet one cannot be reconciled to the amount of hasty generalization and superficial study, which too often passes current in this fast age for sober research. Each one of us must candidly confess that we have often been led astray in our opinions, by the dust we have thrown in our own eyes, as well as by neglect to follow to the end where investigation led us. But when men pose as leaders of thought and science, we have a right to expect from the most careful and impartial research, whether the result should or should not destroy their preconceived opinions. We have students

among us whose labors we have learned to respect, even when time and better knowledge proved them in error ; but there is a growing conviction in the mind of the dental profession, that a great deal of recent physiological and pathological production, has not been pursued with that analytical certainty and impartial desire, by which alone truth can be revealed. We have men revered by us all, earnestly and honestly putting everything known to the proof, and not fearing to confess, when new light breaks upon them, that often they were wrong when they would have laid down their lives, as they staked their reputations, in once asserting that they were right. And yet we have speculative teachers who leap before they creep, and whose intolerance to the opinions of others, weaken one's confidence in the value of their own. They seem to spend their leisure inventing impracticable arguments for impossible conclusions, and without condescending to a cross-examination, contemptuously believe "*après nous le deluge*." The microscopical character of dentine reached finalty when it reached them. When they finished their "researches" (heaven, save the mark !) there were no more microscopical worlds to conquer. Not content with firm and quiet faith in their convictions, they call heaven, as well as their slides, to witness. We have microscopical fissures in operative dentistry, but one must have microscopical eyes too, and

"Optics sharp it needs, I ween
To see what is not to be seen."

One must feel like encouraging every modest effort, even when it verges upon plagiarism ; but teachers who occupy responsible positions cannot expect to escape the onus of their dogmatism in pure speculation, especially when they go to the extreme of declaring that they alone have solved some physiological enigma, and that there is no need for further research. The early authors who thought they had clearly demonstrated the existence of internal caries of the dentine, speculated as honestly as those who theorize to-day on the part that micro-organisms take in it ; when creasote was almost the only antiseptic in our *materia medica*, men dogmatized about the drug, and declared they accomplished results that we now know were impossible. The origin and development of the dental follicle, the definition of diseases, the therapeutical effect of suggested remedies, the so-called "poisoning" from the supposed bi-sulphuret of mercury on amalgam, which was nothing but a harmless bi-sulphuret of silver. These, and a host of other warnings ought to make teachers at least a little modest in the positiveness of their statements. A teacher may gain passing notoriety by the novelty of his opinions ; but unless they are based upon intelligent and able personal observation, and unbiased by his surroundings, they must pass away to exist only among the entombed curiosities—and sometimes the specimens of consummate cheek—of dental literature.

It ought not to be any humiliation to acknowledge one's ignorance in great

or less degree, when we consider the mistakes made in our professional researches by earnest and almost inspired men. It is this spirit which stigmatizes men like the Jones's, Salter, Sewill, Magilot, Parreidt, Taft, Garretson, Kingsley, and W. D. Miller, and which makes one feel when reading a work like Dr. G. V. Black's "Periosteum and Peridental Membrane" that "here is a safe and conscientious guide." We would all find a help to modesty of personal opinion, as well as an inspiration to sincerity in research, if we could keep in memory the saying of old Confucius, "What you know, to know that you know it; and what you do not know, to admit that you do not know it, that is knowledge."

Australia, New Zealand, Bermuda, Jamaica, Ahoy! Ahoy!

We send copies of the JOURNAL to our brethren under the same flag in the above parts of our Empire, and will be glad to hear from them.

Brother Jonathan, Ahoy!

There is a fine Federation of Dental Science all over the world, and Jonathan is as generous as he is full. No politics can stop the reciprocity of good-will between the professions of the two countries; and if we were an outcast we should like no better recreation than sending politicians like Blair, Sherman, and Butterworth into the limbo of obscurity, as men who do not respect the sentiments of honorable Americans as much as their own selfishness and notoriety; and after making Drs. Atkinson, Dwinelle, President and Vice-President, turn out the whole political Congress at Washington and turn in a whole American Dental Convention in their place.

The Mother Land.

Many important changes for the better have occurred in the political and professional position since the last issue of the C. D. S. The following Journals are published: *British Journal of Dental Science*; *The Dental Record*; *The Journal of the British Dental Association*; *The Odontological Society, of London*; and the *Odonto-chirurgical Society, of Edinburgh*, continue to publish their proceedings. The Dentists Act and the system of registration are working much more effectually; the British Dental Association is proving not only a phenomenal success, but we venture to believe that it already leads all the other societies of the kind in America as well as Europe. The education of students is grounded upon a system that may not develop conceited and half-fledged "Doctors of Dentistry," but that is sure to reap

rich reward in the future. We should not be surprised to see the day when earnest students in search of the solid and scientific, in the higher branches, should resort to England or Germany. The day of the advertising, ostentatious, so-called "American Dentist" who is generally a shrewd Briton in the disguise of a cheap degree obtained in the United States in a few months, is nearly over. No one more than respectable American Dentists will rejoice when the last of these tramps is extinct.

Reviews.

A STUDY OF THE HISTOLOGICAL CHARACTER OF THE PERIOSTEUM AND PERIDENTAL MEMBRANE. By G. V. Black, M.D., D.D.S.; 67 Original Illustrations; Chicago: W. T. Keener, 96 Washington Street. \$2.50. Amid a rush of baseless speculation for mere speculation's sake, it is refreshing to meet a volume, the result of original and industrious research in the author's favorite line. Dr. Black's contributions to the lymph system of the peridental membrane; the relations of the fibers of Sharpey, or residual fibers in bone to the periosteum, and the relation of the residual fibres in cementum to the fibers peridental membrane, are of a character to stamp the book as one of the most valuable that has been presented to the profession on this side of the ocean for a quarter of a century. No better work could be placed in the hand of a student who aspires to be something more than a "tooth carpenter," and who feels that their highest sphere in dentistry is not only in the mechanical art of filling a cavity or manufacturing an artificial set. The dentist who has been educated in that groove and who is content to stay there, must lose professional status, or resort to the collateral arts of attracting notice to keep himself before the public. Such a work as Dr. Black's is an inspiration to higher thought and advancement. It is written with so much care and honesty of purpose, it bears the mark from start to finish of plodding and brilliant genius; it makes itself an absolute necessity to any one who wishes truly to understand the structure and functions of the periosteum and peridental membrane; and while not presuming to arrogate to himself as having reached finality in microscopical research, one feels that the author has added much to what was already known.

No student worthy of the name need fear that the book will always be above his comprehension, even should it be considered a little deep at first. It is a volume in which one can find a daily feast of scientific reasoning practically useful every working hour of the day.

A COMPENDIUM OF DENTISTRY for the use of Students and Practitioners. By Inles Parreidt, translated by Louis Ottofy, D.D.S., with notes and additions by G. V. Black, M.D., D.D.S. Illustrated. Chicago: W. T. Keener,

96 Washington Street, 1889, \$2.50. This is by far one of the best contributions to our dental literature which has been brought before the profession on this continent. M. Parreidt is dental surgeon to the Surgical Polyclinic of the Institute of the University of Leipzig, Germany. He has evidently been actuated by a desire to interest the medical profession in the importance of dentistry as a medical specialty, as well as to afford information to the dental student. Dr. Ottofy remarks in his preface: "While the dental literature of the United States seems in many respects extensive and exhaustive, a work filling a place which this is intended to do, has not hitherto been produced." The table of contents comprise chapters on the anatomy and physiology of the teeth, anomalies of tooth formation, diseases of the hard dental structures, diseases of the pulp, diseases of the periosteum, diseases of the alveolar processes, diseases of the maxillary bones, diseases of the mucous membrane of the mouth, neuroses from dental lesions, filling teeth, extraction, prosthesis. There is no effort made to astonish the reader by speculative and ingenious sensationalism. One can see as he reads that the author modestly aims to instruct rather than to amaze; and that he prefers to reiterate old truths and new facts, than to catch a passing notoriety by dogmatic statements that are based upon hasty generalization. The work is not intended to be more than elementary in operative dentistry. Its chief nature lies in a direction not well covered by other publications, and will no doubt have the very large sale its merits deserve. The association of Drs. Ottofy and Black is sufficient to establish its reputation. We commend it especially to the students in our colleges.

HANDBOOK OF DENTAL PATHOLOGY. By N. Blodgett, M.D., late Professor of Pathology and Therapeutics in Boston Dental College, \$1.75. P. Blakiston, Son & Co., 1012 Walnut Street, Philadelphia. Another useful text-book for students treating upon the physiology of the jaws, the salivary glands, the pathological conditions affecting these glands, and the effect of poisons upon these structures, the absorption of the deciduous teeth, etc., general pathology of the teeth, relation of the digestive organs to the diseases of the mouth and teeth, bacteria and their action in disorders of the teeth, defective development, pathological conditions associated with the second dentition inflammation, pathological and malignant growths, tumors, etc. It is not easy to understand what use such a volume as this would be to practitioners who believe that Dentistry is not, or should not be, a branch or specialty of Medicine and Surgery. It is true that many a first-class operator does not know, and does not care to know, even the theory of the subjects treated of in this little work, but the best operator in our ranks would be a better dentist if he aspired to know all it teaches. Like all of Blakiston, Son & Co.'s publications, it is printed in clear type, on fine paper, and well bound.

STATISTICAL INQUIRY AS TO THE RESULTS OF THE IMMEDIATE TREATMENT OF ABSCESSSED TEETH. By Dr. Geo. Cunningham. Reprinted from the Transactions of the Odontological Society of Great Britain, June, 1888. Favoring immediate treatment of certain classes of pulpless and abscessed teeth, first advocated by Professor Hesse, of the Leipzig University Dental Institute, and warmly advocated by some of our most skilful operators on this continent. The subject will be more fully reviewed in our next number, as it is one of special practical importance.

ANOTHER PROFESSIONAL HOLIDAY. By Geo. Cunningham, Cambridge, Eng. A spicy account of the visit to the International Medical Congress at Washington, of the British contingent. The author visited Toronto and Montreal and made himself familiar with the history of the dental movement in both provinces, and has given several pages of his *brochure* to a description of the legislative position of our officers.

ILLINOIS STATE DENTAL SOCIETY TRANSACTIONS. 24th Annual Meeting, May, 1888. One of the most interesting and valuable arrivals.

Miscellaneous.

THE TOOTH IN THE APPLE.—The Macon, Ga., *Telegraph* says: Chandler Jones, a negro, is in jail for a burglary on Mr. Milton's store in Hazelhurst. The circumstances of his detection are peculiar, and the work was done by Detective E. A. Wilson, who had found nothing in the way of a clue except an apple, out of which two bites had been taken. He at once noticed that the two front teeth of the biter were not only irregular, but peculiar. He imagined that when the biter was a boy an old tooth remaining in the gum caused a new tooth to grow one-sided. The apple was placed in water so as to prevent shrivelling, and, keeping his secret to himself, Wilson went down to Baxley, where he knew a number of loafing negroes.

Walking into a store, he bought some apples, and, biting one, said to a well-dressed negro who had attracted his attention: "Try one." The negro accepted the gift, and when he raised the apple to his mouth for a second bite the handcuffs were placed on his wrists. There never was a more astonished negro. He was under arrest so quickly that he was unable to offer any resistance. He gave his name as Chandler Jones, and was found to be wearing a suit of clothes and a watch and chain taken from Mr. Milton. Jones was taken to the store, where he showed how he obtained entrance on the night of the burglary, and how the first thing he saw was a barrel of apples. He picked up one, and after two bites laid it down on Mr. Milton's desk.

THE following licentiates have died since the organization of the profession in 1868 :—Ontario : Wm. Allingham, Toronto ; John Bowes, Hamilton ; M. Buggin, Mount Forest ; John G. Bull, Mitchell ; C. H. Demages, Mount Forest ; J. T. Dorland, Oakville ; J. H. Ferguson, Trenton ; T. H. Filgiano, Hamilton ; W. O. Guthrie, Toronto ; M. S. Henry, Oshawa ; W. C. Jewell, Meaford ; A. D. Lalonde, Brockville ; A. Lough, Millbrook ; H. May, Belleville ; E. J. Millard, Toronto ; W. C. Muir, Kingston ; J. L. MacDonald, Kingston ; D. Macfarlane, Brampton ; J. S. Neelands, Ogdensburg ; R. Reid, Galt ; J. B. Saline, London ; J. Stuart Scott, Toronto ; S. Smiley, St. Catharines ; F. J. Smith, Windsor ; M. E. Snider, Toronto ; A. C. Stone, London ; A. Teeple, Woodstock ; O. Uptigrove, London ; S. H. Walsh, Millbrook ; W. W. Warren, Chatham ; S. G. Webster, St. Catharines ; L. Wells, Simcoe ; J. Wells, Port Burwell.

THE married women of Java dye their teeth black, which is supposed to be a mark of distinction. Their lineal descendents may be found among tobacco chewers. The women of the Marian Islands also blacken their teeth, also the people of Sumatra and Malacca, because they believe that men ought not to have white teeth like brutes. In some of the East India Islands, the people gild the two front incisors of the upper jaw, and blacken the adjoining teeth. In New Zealand and some other Islands in the Pacific, there should be great scope for gold-crown operators, as a golden tooth is regarded as an ensign of royalty. There are no idiots, however, like those on our own continent who have had diamonds inserted into conspicuous cavities.

THE *Archives of Dentistry* has four local editors, and an editor for every State from Alabama to Wyoming Territory. In its list of "States" it oddly adds "Ontario" and "Quebec," with a blank for the prospective "editors." It may easily get the editorial blanks occupied ; but it will wait longer than the millénium before it gets Ontario and Quebec among the list of States. If the "States" improve and behave well, we may some day admit them to our Confederation. They have the money, and we have the political stability.

AMONG the curious relics of a by-gone age, the Odontological Society of Great Britain, is in possession of an old notice-board, of which the following is a correct copy :—

Thos Smith Glazier, Let Blood & Draw
Teeth att 3 Tea Kettels & Potts Buckels
Lantrens Cups To ^{BE} Handled Heare.

"WHAT you know, to know that you know it, and what you do not know," to know that you do not know it, that is knowledge."

—Confucius.

THE 25th anniversary of the Chicago Dental Society will be celebrated by a three-days meeting in the Canada Pacific Hotel, Chicago, Feb. 5th, 6th, and 7th. The usual recitations are offered, and the programme is sufficient to tempt any one who can possibly attend.

THE Quebec dentists are making another effort to secure a really protective Dental Bill for the Local Legislature. One of the experiences derived from twenty years' effort, is that when you hire a lawyer to draft a Bill, you should hire another one to watch him.

"Do you wish to be great? Then begin by being little. Do you desire to construct a vast and lofty fabric? Think first about the foundations of humility. The higher your structure is to be, the deeper must be its foundation. Modest humility is beauty's crown."

—*St. Augustine.*

"There is na workemen
That can bothe worken well and gastile.
This must be done at leisure parfaitile."

—*Chaucer.*

OF Andrew Marvell (1660) it was said, "he was beloved by good men, feared by bad, imitated by few, and scarce paralleled by any."

DR. ELEAZER PARMLY stated that the first gold filling he ever saw was in 1815, inserted by Dr. Waite, of London.

THE Legislature of Quebec and Ontario were the first to exempt dentists from jury service.

THERE are now over thirty dental colleges in the United States.

"IN AFTER DAYS."

In after days, when grasses high
O'ertop the tomb where I shall lie,
Though well or ill the world adjust
My slender claim to honored dust,
I shall not question nor reply.

I shall not see the morning sky,
I shall not hear the night-wind sigh,
I shall be mute, as all men must,—
In after days!

And yet, now living, fain were I
That some one then should testify,
Saying—*He held his pen in trust
To Art, not serving shame or lust.*
Will none? . . . Then let my memory die
In after days!

—*Austin Dobson.*

Publishers' Notice.

DEAR DOCTOR,—You now receive this the first number of the *DOMINION DENTAL JOURNAL*, and we hope that you will pardon any errors or omissions and also the lateness of its appearance. It was found impossible to get ready by the 1st of January, '89, as promised, for there were so many delays incident to a new undertaking of this kind, which, although we did our best, could not be entirely foreseen. In the future the *JOURNAL* will appear promptly on the 15th of January, April, July, and October.

We have endeavored to secure for our patrons as able supervision for the *JOURNAL* editorially as was possible, and we think that the staff whose names appear on the title page will require no commendation from us to the profession at home or abroad.

We respectfully request you to aid us in our undertaking, and would say that the ultimate success of the *JOURNAL* depends upon the profession more than on the editors or publishers, and so it is for you to say whether you feel able to do your small share in making dental journalism in Canada a permanent success. In return for your support we hope to give you an ever increasing *JOURNAL*, with columns filled with the best selections from foreign journals, and a medium for intercommunication for the Canadian profession.

Enclosed you will find an addressed envelope, and we hope that, if you have anything to say on professional politics, dental science, art, or education, or perhaps an expression of good-will to the *JOURNAL*, financial or otherwise, you will make use of it.

And before closing we would heartily recommend our advertisers to you. They are all well-known firms, and communications sent to them, or better, to your own Canadian depots, will receive immediate attention.

Wishing you every success in your profession throughout the coming year, and with the hope that the *D.D.J.* may contribute some element to it, we remain, yours respectfully,

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Box 298, Toronto.

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VOL. I.

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No. 2

Original Communications.

Sensitive Dentine.

By J. B. WILLMOTT, L.D.S., D.D.S., M.D.S.,

Professor of Operative Dentistry, Royal College of Dental Surgeons of Ontario.

The subject which I have chosen, for what I fear will prove a somewhat incomplete paper, is by no means novel, but is, nevertheless, interesting to both operator and patient. So long as a large proportion of our patrons approach our rooms with feelings akin to those experienced by the victims of the Inquisition in bygone ages, we, as practitioners, will be interested in the discussion of Sensitive Dentine. On this subject so much has been said and written that I cannot hope, at best, to do more than present known facts in a somewhat new aspect, and to make some deductions, which may possibly suggest a method of combating the difficulty, more intelligent, perhaps more scientific, than some which have been in use.

Though all are agreed that human dentine is endowed with the function of sensation, there is no general agreement as to the minutiae of the process by which a sense of injury is conveyed to the brain so that we may take cognizance of it.

The theory elaborated by Dr. Black, in "American Dentistry," is reasonable and accounts for the phenomena observed. In this view, experiment has demonstrated that protoplasmic cells are sensitive, and manifest their sensibility in response to contact with stimulants both chemical and mechanical. The tubules of the dentine are occupied by projections from the protoplasmic odontoblast. The central end of the elongated odontoblast is in close association with the fine nerve filaments in the periphery of the pulp.

A fair assumption from these facts seems to be, that the sense of injury experienced by the free extremity of the odontoblast is communicated to the nerve filaments, with which its central extremity is associated, and by these transmitted to the brain.

Whatever may be the precise *modus operandi* by which it is affected, it would seem perfectly clear, from the anatomical structure of dentine, that sensation is conveyed through, or by, the contents of the tubules, and that sensation in dentine is confined to these contents.

Though all dentine is more or less sensitive, there is a vast difference in the normal sensibility of the teeth in different individuals.

This variation is dependent on age, temperament, sex, quality of tooth tissue, and other causes, and is so great that what would be hyperæsthesia in one patient would not reach the standard of normal sensibility in another.

Ordinarily, in the discussion of the treatment of this painful condition, this fact has been overlooked. Methods of treatment which, in cases of exalted sensibility, as a pathological condition, have been entirely satisfactory, have, in apparently similar cases, proved useless and disappointing, because the condition was normal and not pathological.

Up to comparatively recent years the commonly accepted cause of hyperæsthesia of the dentine seems to have been inflammation. This theory is defended at considerable length by Dr. Taft. In the light of our present knowledge of the minute structure of dentine, as revealed by the microscope, his argument cannot be considered very exclusive. Nor has any treatment, scientifically based on the inflammatory theory, ever produced satisfactory results. Another, and more plausible suggestion, was that the dental pulp was really the seat of the exalted sensibility, and that the contents of the tubules were merely the passive instruments or agents to transmit the external impression to this central organ. Rational treatment based on this hypothesis would be the administration of such therapeutic agents as, acting on the nervous or circulatory systems, or both, should lower this exalted sensibility. The observed result of the use of nervous or arterial sedatives for this purpose has not tended to confirm the correctness of the theory.

Dr. Louis Jack has discussed the subject in the second volume of "American Dentistry," and concludes that "it may be considered clearly established that dental sensibility is attributable to the state of the tubular contents, and that it is excited into extreme manifestation by some physical irritation of the fibrillæ." The doctor has only considered this sensitiveness as associated with dental caries, and attributes the physical irritation to the disintegrating process by which caries are developed. It is well known, however, that this condition is not confined to teeth affected by caries, and, consequently, is not always occasioned by the disintegration of dentine.

SENSITIVE DENTINE

My own opinion, formed after considerable observation and study of the phenomena exhibited, and now expressed, not dogmatically but tentatively, is, that hypersensitive dentine as a pathological condition is analogous to the familiar condition known as "teeth on edge" and is produced by the same general cause, the irritation of an acid.

In a severe case of "teeth on edge," from eating sour fruit, the irritating acid is concentrated and abundant. It passes through the pores of the enamel, which is itself devoid of sensation, and acting on the peripheral extremities of the fibrillæ, causes such irritability in this tissue, that the slightest impact on the external surface of the tooth, or any material elevation or depression of temperature, causes extreme discomfort. In the hyperæsthesia ordinarily observed in dental practice, in association with caries, the irritating acid is dilute and not in large quantity, so that the effect is produced slowly and requires for its manifestation greater variations of temperature, the contact of such irritating agents as sugar or salt, or some injury to the locality affected, as the cut of an excavator. The difference of the two conditions is one of degree only. In the former the irritant being applied for a short time only, and soon becoming so diluted by the saliva as to become inert, the exalted sensibility rapidly subsides. In the latter, the irritation is persistent and the hyperæsthesia becomes chronic.

We are occasionally asked to prescribe for patients whose teeth have become so excessively sensitive, that the slightest variations of temperature produce acute suffering, requiring that both food and drink be taken warm. We are frequently called upon to treat cases where the necks of the teeth have become acutely sensitive to the touch of the tooth brush or other hard substance, and are especially so to contact with such chemical agents as sugar or salt or strong acids.

The first we assume to be due to an acid condition of the system generally, or a markedly vitiated state of the oral fluids, the last to be due to the acid secretions of the sub-mucous glands, probably associated with an acid condition of the saliva. If our theory be correct, antacid treatment, systemic or local, or both, should be effectual. In practice we find that the former condition, when not associated with other serious constitutional disturbance, will yield promptly to Potassium Bicarb., in ten-grain doses three or four times daily. The latter is effectually relieved by the free use of precipitated or prepared chalk, rubbed into the interstices of the teeth and pasted around their necks on retiring at night, or by frequent rinsing of the mouth with lime water.

It is, however, with the treatment of sensitive dentine in caries that the dentist is principally concerned.

If we diagnose this as a pathological condition, the indications will be to gently remove as much of the debris as may be done without severe pain, neutralize any free acid with a drop of liquor ammonia, and fill temporarily with zinc phosphate, thus shutting out the irritant and permitting the exalted sensibility to subside.

If the sensitiveness, extreme though it be, is the normal condition of the tooth, temporary filling for a month, or for a year, could not be expected to afford any relief. The fact that the average dentist is able to discriminate with a good degree of certainty between the normal and the pathological, does not bring him much comfort. What he wants is some easily available treatment that shall promptly control either or both. For this purpose the whole materia medica has been ransacked, and on one theory or another, or on no particular theory but at hap hazard, a large proportion of the therapeutic agents known to science have at some time been recommended and tried, with such indifferent success, that there is still an anxious inquiry from our patients for some relief from the tortures of dental operations.

A great deal may be accomplished by gaining the confidence of the patients—by stimulating their courage—by tact and gentleness of manner and touch, by the use only of suitable and sharp instruments, skilfully and intelligently used; but even so, there is still very much to be desired. Surely science or common sense can suggest some means to this end. Referring again to the structure of living dentine, we find the tubules occupied by fibrillæ, ready instantly to communicate the fact of any injury to their extremity. If it were possible to cause these fibrillæ to draw themselves back into the tubules so that there should be a free, unoccupied portion of the tubule which would be cut off without injury to the retracted occupant, it would seem that we had accomplished our desire. Probably not entirely; as there would still remain that part of the pain due to vibration caused by the force necessarily employed in cutting dentine: this would be slight. Is it possible to secure this retraction? Agents which stimulate contraction are at once suggested. Contraction of living tissue is, however, not a condensation of bulk but merely a change of form. As the tubules are already full and the walls are unyielding, change of form so as to produce contraction is not possible. A large percentage of the contents of the tubules is water; if a portion of this could be removed, until it could be replaced again from the central source of supply, the cell would shrink from its free end towards its central attachment.

This is doubtless what occurs when a carious tooth has been isolated and protected by the rubber dam and the free moisture in the cavity absorbed; the natural heat of the tooth slowly evaporates the water, the

SENSITIVE DENTINE

fibrillæ retract and the surface can be removed with less pain than when it was moist. Here, it seems to me, we have suggested to us *dehydration*, as the true secret of promptly obtunding sensitive dentine whether it be normal or pathological.

There are two principal methods by which this may be accomplished ; by evaporation, and by the use of agents which have a marked affinity for water. To succeed by either method it is essential to protect the cavity from moisture, not only when the dehydration is being accomplished, but until the excavation is completed. With the advent of moisture we soon have a return of sensation and that exalted by the irritation of the previous dehydration. If we propose to dehydrate by evaporation, a good plan will be to protect the cavity, thoroughly absorb the free moisture, remove the loose debris, then saturate the cavity with absolute alcohol, and, in a minute or two, absorb it and apply a jet of warm air by one of the appliances for that purpose. In this way the water is evaporated and the fibrillæ retracted to a greater depth than by using the warm air alone. Of the available agents having a strong affinity for water, zinc chloride has long been used as an obtunder, the effect being generally ascribed to its escharotic property. The fact that the sensation returns after a brief period would seem to contradict this theory. It is more probable that its virtue is largely due to its activity as a dehydrator. If this view be correct, Dr. Jack's direction to carefully and thoroughly wash out of the cavity the dissolved zinc chloride, would appear to be a mistake. The best results will be obtained by protecting and thoroughly drying the cavity, removing the loose debris, then introducing the zinc chloride in crystals, forcing them against the walls of the cavity. When the pain has subsided, absorb the now fluid zinc chloride and carefully exclude moisture until the cavity is prepared. Whatever agent is used the same general procedure is indicated.

A preparation consisting of equal parts by weight of absolute alcohol, anhydrous glycerine and tannic acid has been used with good success, though it is doubtful if the astringent adds anything to its virtue, that depending on its dehydrating property.

What is known as Herbst's obtunder, whether so designed or not, is evidently a combination of a dehydrator, sulphuric acid, with an anæsthetic, cocaine, with a view, doubtless, to lessening the pain of the application. Having had no experience with this remedy I cannot speak from observation as to its success. As its efficiency would seem to depend on the presence of an amount of free sulphuric acid, danger to the integrity of the tooth tissue might reasonably be apprehended. What is known as Robinson's remedy—carbolate of potassium—when properly

prepared is a really efficient agent. Dr. Robinson's directions were to rub together equal parts of carbolic acid in crystals and potassium hydrate. This, however, results in a powdery mass very inconvenient for use. The addition of about fifteen minims of anhydrous glycerine to each dram, makes a friable solid mass which can be readily applied to the cavity. That which is solid in liquor form, however valuable in the treatment of pyorrhœa alveolaris, is not the best form for use as an obtunder of sensitive dentine. In the use of this agent the same precautions are necessary in the exclusion of moisture as have already been referred to in the use of zinc chloride.

In comparison with zinc chloride the pain of application is less severe and not so long continued. My own experience would suggest that it improves with age; the chemical combination of its constituents probably requiring a considerable time to perfect. A suggestion as to the possibly far-reaching action of zinc chloride may be obtained, by placing a drop of a strong solution in a considerable portion of white of egg. In the course of a few hours the coagulated mass will have extended to the diameter of probably an inch. A fragment of carbolate of potassium of similar size will, under similar circumstances, have converted a considerable portion of the albumen into a firm transparent jelly, possibly due to the abstraction of its water. Which agent is most dangerous to the integrity of the fibrillæ I am not prepared to say, but have a strong suspicion of the former.

There are a number of other agents, such as dry chloride of lime, potassium carbonate, etc., which have an affinity for water, and might doubtless be used with some success. There are none, however, all things considered, equal to those already named.

Arsenious acid, for obtunding purposes, has been proved to be so dangerous to the vitality of the dental pulps, that it has ceased to be used for this purpose, and need not be here discussed.

To sum up—the points I have endeavoured to make are :

- 1st. Excessively sensitive dentine may be either a normal or a pathological condition.
- 2nd. As a pathological condition it is due to acid irritation.
- 3rd. This irritation may be local and confined to the walls of the carious cavity, or it may be systemic and affect teeth otherwise healthy.
- 4th. This pathological condition from systemic causes may be effectually treated by antacids, and when from local causes, by the neutralizing of the debris in the cavity and temporary exclusion of the irritating agent.
- 5th. That exalted sensibility of dentine, whether normal or pathological, may be successfully combated by intelligent dehydration.

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6th. The treatment to be effectual must include the entire exclusion of moisture until the cavity is prepared.

7th. That the dehydrators with which I am familiar may be placed in the order of their utility as follows, viz.:

- (a) Absolute alcohol and warm air combined.
- (b) Robinson's remedy.
- (c) Zinc chloride in crystals.
- (d) Alcohol, glycerine and tannin.

Dentistry in the Province of Nova Scotia—Past and Present.

By A. C. COGSWELL, D.D.S., Halifax, N. S.

Dentistry in the Province of Nova Scotia has steadily advanced as a science since 1862. At that time, with a population of about 200,000, ten dentists filled the bill for the whole province, not one of whom had a dental degree; two were M.D.'s and made dentistry a specialty. Three of the principal towns in the province had in each of them ten resident dentists. Halifax, a city of 20,000, had seven, while several of the latter visited periodically some of the towns and villages, as well as Newfoundland; and thus divided their skill and time as occasion required. And at that time a dentist had no professional standing, little attention had been paid by the inhabitants to the conserving of teeth, hundreds of valuable organs were removed to give place to artificial dentures, not that teeth could not be filled as well, and possibly in many cases more carefully and honestly done than in this age when time is considered more valuable, and quantity not quality seems too frequently to be the incentive to action. As for permanency of work, done twenty years ago, many of us can testify from cases presented by patients, in whose mouths not only gold plates as well as gold fillings prove that skill was not wanting, even at that period of the profession in this province. Not later than last year a tooth was removed for a gentleman aged 80 years, in which the filling had done faithful service for 49 years, and had it not been for absorption of the process and loosening of the tooth, might have lasted as long again. Twenty and twenty-five-year fillings can be seen in very many patients' mouths in this city, still sound and good. At this date can be shown at any time, gold fillings placed in the superior central and lateral incisors proximal and distal surfaces, that were carefully and honestly made for a gentleman in the year 1852. Some 37 years ago without the slightest change or defect, these fillings were made by hand pressure and non-cohesive gold, and speak volumes for the operator, and credit to the patient for his care and preservation during the period named.

Dental prothesis was probably more resorted to 20 years ago than at the present time, possibly for several reasons. First from the fact that so many persons had allowed their teeth to become so diseased and objectionable, besides suffering and inconvenience arising from exposed nerves and abscessed roots, that necessarily seemed to demand that something be done to alleviate pain and restore lost organs for speech and mastication, and as usual when a few in a community or city found beneficial results and improved appearances, many follow; again, treating exposed pulps, and restoring devitalized teeth was scarcely thought of, or at most if nerves were treated with arsenic, seldom or ever were they removed, but fillings were placed over the dead body, and ten to one if the patient was not obliged to have the tooth removed, feeling confident that by so doing "dead men tell no tales;" and as for beneficial results from that method, neither the dentist nor the patient would recommend or endure it.

While now the removal of teeth is confined principally to dentists, few people are willing to risk their jaws in the hands of unprofessional men. Twenty years ago, physicians, barbers, druggists, blacksmiths and handy men scattered throughout the Province, and in the city of Halifax, each possessed some unknown skill, that enabled them to use with wonderful dexterity a most valuable instrument called the Turnkey, that no doubt was invented at the time of the Inquisition, and this was made to do duty on all occasions, and when applied, something had to give way, "either by hook or crook" when Hercules stood in front of the patient with both hands applied to the instrument which was wound round with an old silk handkerchief, ostensibly to prevent the instrument pressing on the process, while the assistant firmly held the head of the patient between his knees, and pinioned his hands like a lamb led to the slaughter. And when the tooth was out the greater joy seemed to be expressed by Hercules, when he exclaimed exultingly "Oh, his jaw is not broken."—It would be hard to describe the feelings of the victim unless we say as the boy did, that just before they killed him his tooth came out. While this describes the method of removing teeth some 20 years ago and more, I am sorry to say there still exists some relics of past ages in the city of Halifax—owned and used whenever chance offers by unprofessional men, and owing to there not being any dental law to regulate the practice of dentistry, it is not unusual to have parties call with broken jaws from such piratical treatment. Not later than 1887, two cases were treated. In one case, the teeth were wired together and Barton bandage applied for ten days.

At the present time there are about 40 dentists practising in the Province with a population of about five hundred thousand. Some 20 of these are graduates of Dental Colleges—and several have degrees of M.D. in

addition. Most of the towns and villages support one or two, while the city has the largest number. Some six years ago an effort was made to obtain Dental Legislation, but it met with little support from the members of the country; and lacking that assistance desirable from those in the profession, owing to their not being any interest manifested, it was not carried through the Legislature. But we feel hopeful ere long to secure a bill similar to Ontario and other places, and to put this province in a position to send our delegates abroad, and affiliate with other societies.

Thumb and Tongue Sucking.

Illustrated by Models.

By W. Geo. Beers, L.D.S., Montreal.
Read before the New England Dental Society.

To many a child who resents weaning as an inhuman breach of maternal affection,

“There’s nothing half so sweet in life
As love’s young”—*thumb*.

Nature has designed a baby’s thumb as the sweetest substitute for the mother’s nipples, even for the supple stripling who can put his toe into his mouth, and wriggle off a nurse’s lap like a globule of mercury. It is evident that in spite of its horny tip, and the absence of the milky way, there is something to a baby in its own tender thumb, which adults have forgotten, and no gross soul can know. I have just asked my wife why a baby likes to suck its own thumb better than its mother’s, and without intending a pun, she said, “It is because it is handy.” The habit seems to verge upon a sort of self-cannibalism, without a parallel in the records of the Anthropophagi; and certainly without one in the history of our Indians, whose papoose, strapped in its “*raranon*,” has no chance to indulge in fruitless sucking, unless it sucks its tongue; and I believe that sucking the tongue and lips, is only the revenge a child enjoys for depriving it of the opportunity to suck its thumb.

It is not surprising how a little habit, daily indulged in, will deform the features of the face in early life, when the cartilaginous and bony framework are soft and pliable: pulling the lobes of the ears, the lower lip, the eyebrows, each have their Nemesis in some unnatural result. I once had under my daily observation a lad who had caused a considerable protusion, as well as torsion of the left central and lateral incisors, from the inveterate habit of biting his left thumb nail, and I am convinced that many cases of irregularity of these teeth are due to just such simple but undetected causes. We know how easily teeth may be widely separated in a few hours,

with wood or rubber; in a few minutes with a mechanical separator; how uneven occlusion, such as the anterior side of an inferior bicuspid meeting the posterior side of a superior cuspid, will deviate the weaker towards the median line above, or the posterior below. The constant and careless use of stiff tooth picks, even the vulgar habit of keeping one between the teeth, must do more mischief in producing irregularity than we imagine. But there is this difference between the bad habits of adult life and those of infancy; those of the former never in any way effect or alter anything but the teeth and the transverse septa, and are not made hereditary; those of the latter not only affect and alter the position of teeth, but create abnormal developments of the whole alveolus, which frequently descend to succeeding generations. I know that this law of heredity does not apply to such abnormalities as cleft palate, hair lip, etc., frequently it follows the mature result of a habit formed in childhood, when it seems altogether absent as the result of habits begun in adult life. The irregularities of the teeth which owe their origin and first cause to habits occurring after maturity, cannot divert the direction of the anterior plate of the alveolus, unless deliberately and persistently applied with a force that would make them exceptional.

In cases of protusion of the upper incisors it is easy to distinguish between those of a congenital and those of an acquired form. I have one case that is the best illustration I have ever met of the former. It is a perfect V shape from the first molars to the turned points of the centrals, and is an exact reproduction of the upper jaw of the patient's mother. These cases seem to be bred in the bone, and run in the blood, but I think the opinion of Dr. Kingsley is generally accepted, that they may have the hereditary tendency eradicated, if corrected as soon as they are developed.

Where no such hereditary transmission can be discovered, and where the peculiarity is not directly due to the retarded shedding of the deciduous teeth, outside of which the permanent ones may have erupted, it may safely be credited to the habit of sucking the thumb, even if the patient or parent deny it. The habit of tongue-sucking may become so unconscious that it may go on during the day, and even all night, unknown to the patient. Sucking the under lip has been frequently noticed when the child is awake as well as asleep, and it is not uncommon to observe the habits continued until the child is into its teens. I am not disposed to believe that the teeth of the lower jaw are much affected by thumb-sucking. It is said that they are frequently elongated and pushed back, but I cannot see how this can occur when the thumb is *in situ*, as the nail or knuckle rests on top of the incisors, and ought to prevent rather than produce elongation;

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while the action of the strong tongue striking behind them at every suction, and the position of the lower lip in front, would seem to counteract any such effect as follows in the upper jaw. No matter how short or long a tooth is, it has its anatomical limit of enamel at the neck, and however elongated it may appear, it is not abnormally so if the cementum is not visible, but you can perceive that they are naturally long. I have one remarkable case where it was declared that the lower jaw had been pushed back as a result of thumb-sucking, but it was a congenital malformation; the rami were short and small; in fact, it looked as if it did not belong to the skull, as the superior maxillary was very broad. There was an unsymmetrical development of the temporal bones, and a peculiar shortness from the symphysis to the last molar. The patient was about forty and yet there was no *dens sapientiae* in the lower jaw, while they were fully developed in the upper. The teeth of the lower were disproportionately smaller than those of the upper. There was a great fullness and depression of the occiput, what an Hibernian might call, a hump-backed skull. These various malformations were distinctively congenital, and yet it was apparent that notwithstanding the distance between the upper and lower incisors when closed, thumb-sucking had caused the uppers to spread like a fan. I could not induce the patient under any circumstances to let me secure impressions. In the meantime, I am keeping my eye on him with the hope of a post-mortem. Of course the pushed-back appearance of this lower jaw was exceptional, but I have yet to see the first case where the lower incisors were elongated or pushed back by thumb-sucking. I can understand how sucking the lower lip as an inveterate habit, might draw the lower incisors backward, but never upwards.

Every one of us, no doubt, has met these cases in practice, and has found the difficulty in getting the patient to admit the soft impeachment. Very likely a thumb-sucker becomes unconscious of the habit in the delectation of the indulgence, and is as honest in his denials as the Greek sailor, who repudiated the charge of cursing, by swearing by all the Gods that he did not swear.

I have also a genuine case of an hereditary thumb-sucker, whose father's upper teeth were protruded by the same habit, and whose grandfather, on his father's side, had also caused an ugly deformity in the same way. To such an extent did this patient suck his thumb, that the nasal septum was deviated to the left side by the pressure of the fingers lying against the nose in sleeping. There was but slight respiration through one nostril. I have at my office a model showing the perfect regulation of this case, giving color to the theory that the deformity, even when transmitted for two generations, may be remedied.

I think it will be found in almost every case of thumb-sucking that the tonsils are enlarged and the saliva vitiated. I have not met a case of an inveterate thumb-sucker that was not also a mouth breather, and it may be that this last habit originates as a coincidence of the former. If the patient sucks during sleep, the tongue will lie under the thumb, instead of in contact with the hard palate; the mouth will necessarily perform the act of breathing. I venture to believe there is a good deal of superficial diagnosis, and nonsensical writing indulged in as to the nasal and mouth results of mouth breathing. Dentists who are constantly at the open mouth from childhood, have more claim to be dogmatic in such statements, and it would seem to be their general opinion that while enlargement of the tonsils may occur, the assertion that uneven, irregular, or protruding teeth, and arched palate result from imperfect closure of the mouth, is not sustained by facts. There may be coincidences, and these would appear to be consequences. I believe that more careful diagnosis would trace the true origin to thumb or tongue sucking, and that the shrunk *alae* which lie close to the septum, is as certainly due to the pressure of the fingers during sleep, as the fan-like spreading of the incisors is due to the thumb. Specialists are apt to become fanatical, and to attribute every abnormality to a perversion of the principles they maintain; and to assert that mouth-breathing *per se*, will alter or affect the formed arch of the hard palate, is to show an ignorance of the anatomical and physiological laws of the maxillary. I admit the possibility of changing the form of the hard palate, but not by the natural or unnatural breathing. The acquired cause, if any, will be found to be in the thumb. When it is known that the spontaneous dislocation of the lower jaw has occurred from vigorous thumb-sucking during sleep; that the thumb is a hard mechanical force against the roof of the mouth and the teeth, and especially that the bones of a child are so easily altered by pressure, it is no surprise to find the palate behind the incisors of a thumb-sucker, a perfect fit for the patient's thumb. The chief muscles used in sucking are those of the tongue. The centre of the tongue is depressed by the *genio-hyo-glossi*, and the side elevated by the *stylo-glossi*, and thus a vacuum is created. Of course the *orbicularis oris* is brought into play in seizing the thumb, much more than it could be in sucking the tongue, if it is used at all in the latter, but the tongue does the sucking. It is curious how inevitably this habit will extend from the thumb to sucking the clothes, and in fact, whatever the young imp can get into its mouth. It is quite strange to witness the indifference of parents and even physicians where the habit is observed. One would imagine that the idiotic expression which often results would be sufficient to warn parents from neglecting it. If we, as dentists, have opportunity, as we should have,

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to watch the growing teeth at least twice a year, we can hardly fail to detect children addicted to these habits. Like sleeping with the mouth open, which can be easily cured by gently and frequently pressing the lips together in sleep, if taken in the outset, fruitless sucking can be cured by daily watching and nightly prevention. When parents are made to understand the evil consequences and the difficulty of treatment, they will be more disposed to follow the advice we give them. Some children can be easily restrained or cured by making the habit a subject of ridicule and shame; others must be put beyond the power to indulge in it. Whether you put aloes on their lips, gags on their mouths, boxing gloves on their hands, or Solomon's regulating apparatus on their buttocks, early and persistent attention will prevent one of the most unsightly deformities of the human mouth.

Just as I was closing this, I was given the accompanying slip from a paper:

"According to Dr. Berillon, the well-known French specialist, the practice of sucking the thumb at night, to which so many children are addicted, and of which it is next to impossible to break them, can be put a stop to by a single hypnotization, accompanied, of course, with the requisite suggestion. The child never by any chance returns to the old habit again, though his memory retains no trace of the order or prohibition which operates so powerfully on his will."

Dr. Blackett: This very interesting paper is now before you for discussion.

Dr. A. M. Dudley: From a case I once saw, I can heartily endorse what is said in the paper in regard to the ignorance of parents as to the result of allowing children to indulge in this habit. I was going home from some dental meeting I had been attending, with a friend. We observed a child with its mother, in the car, the child sucking away at its tongue. The whole expression of its face became distorted. We watched the operation as long as we could, and, seeing how indifferent the mother was, we finally thought it was our duty to go forward, and broach the subject to the mother, and warn her of the danger which was coming to the child. The child was a little girl, eight or nine, possibly ten or twelve years old. The jaw had been badly deformed. To our surprise we found that the mother, instead of correcting the child, had rather indulged her in it, and had gone so far as to give the child something to hold in its mouth in the night to suck. She had not realized the serious results that were occurring from it, and was greatly surprised when we told her, that the child had a particle of deformity. The child never went to bed without something in its mouth to suck.

I had a case in my own practice, of a young lady, her father was superintendent of the public schools in Boston. This young lady had grown up

to be twenty-two or three years of age, and had followed it up until she was a young lady, and had done nothing to break herself of it until she went to a dentist in Paris, and then found out, for the first time, that the irregularity was the result of thumb sucking. The case had been treated by the dentist to correct the irregularity so rigorously, as to cause the death of the pulps, and my work consisted only in bleaching the teeth.

It is true that many parents do not realize that for their children to indulge in the habit of tongue and thumb-sucking, is to produce irregularities.

Dr. Potter: I fully agree with the paper, and what has been said on the subject, but I know of a case of a child always taking hold of a blanket, and sucking it. Her parents indulged her in the habit, and the blanket was cared for by the mother. When that child was ten years old I noticed that the blanket had worn away till it was about a foot square. I think the lady is about twenty-five years old, and she has about the most beautiful set of teeth I ever saw.

Dr. A. H. Gilson: I would like to ask Dr. Dudley, if in the case he mentioned he saw any deformity in the upper lip? I have noticed that in the upper lip there is a groove, caused, I think, by the thumb.

Dr. Dudley: In both the cases there was an apparent thickening of the tissues at the median line of the teeth, a shrinking of the lip, so that it did not come down over the teeth.

Dr. J. A. Bazin, Montreal, P.Q.: I remember a case that I had about twenty-five years ago. The patient was a young man of seventeen, and on questioning him he admitted the fact of sucking his thumb in his "baby" days. I brought about a satisfactory result in a little over two months. It was done in this manner:

A gold plate was struck to embrace the bicuspid and first molars and extending outside well up on the gums. On these extensions I fastened lugs to which I tied small rubber rings, and when the plate was in position in the mouth I passed a silk ligature through the ring and drawing tightly around the outside of the tooth, tied. To prevent the ligature slipping up on to the gums I made from thin plate, two flat hooks, similar to crane hooks, which were put over the cutting edge of the central incisors, the ligature being caught and held by the other end being squeezed.

Thus constant traction was exerted, and plate easily removed. About twice a week new rings were put on, and rapid movement obtained.

I may say that as the teeth came to the desired position I found that the lower teeth interfered, as they were long and nearly touched the gum of the upper jaw.

By keeping up a strong pull I found that the roots of the incisors of the upper were being brought outward, the lower teeth acting as a fulcrum,

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and the facial lines being materially changed, and the whole expression of the face much improved.

In due course, the plate was removed, and the teeth ligated for some weeks, and some few months after no sign of yielding could be perceived.

Dr. A. W. Colvin : Not having a model I wish the person was present. I expected she would be to-day. The case is of a young lady whose teeth protruded to that extent that she was ashamed of the appearance of her mouth, and would frequently cover her mouth with her handkerchief when conversing. I do not think the lip was shorter on one side than on the other, but had that appearance. The case just spoken of reminds me of my case. The inferior teeth striking the upper incisors and laterals so as to force them outward. I removed the left inferior incisor in order to make room. I then proceeded to force the whole front inward. The change was very marked. I have treated many cases of this kind, but none with such pleasing results to the patient and myself.

Referring to the incident of thumb-sucking, related to by Dr. Porter, it is readily seen that in sucking the thumb, the weight of the hand and forearm would have a greater tendency to draw the teeth outward than the sucking of the corner of a blanket, as the weight of the blanket would be less.

A Member : I well remember that up to fourteen or fifteen years of age, I had considerable difficulty in covering my front teeth. The teeth were exposed, and my lip did not seem long enough.

Pulpless Teeth.

By CHAS. A. MARTIN, L.D.S., Ottawa.

I have no doubt that in the practice of most dentists, as well as my own, the greatest number of patients applying for services from the middle, or less intelligent class of people, are those that have suffered, or are suffering pain ; although they are repeatedly told that they should have their teeth attended to in time, still, the exposed nerve or suppurating tooth, is as repeatedly presented. Awaiting the approaching period when the people will be better educated regarding their teeth, and more obedient to the instructions of the dentist, it behooves us to obtain all the knowledge possible as to the best method of treating such cases. I purpose this evening as briefly as possible to state what I know about preserving pulpless teeth. I do not claim entire originality, nevertheless I believe each time a subject of this kind is recorded, new material or ideas, are always added. If it was not so, there would have been no progress.

The great number of pulpless teeth that are treated and preserved, is proof positive of the good we are capable of conferring on our fellow beings. Teeth that have dead pulps are called "dead teeth," but they are not really without life so long as the vital connection is maintained by means of the live cementum and periosteum; there is no doubt but that circulation of nutritive fluids continue between the investing tissue of the tooth (at least is kept alive) and as the canaliculi of the cementum are more or less connected with those of the dentine, the latter tissue may also possess some vitality in its external parts in pulpless teeth, after conservative treatment.

A recent writer says, "A tooth has two sources of nutrition, the pulp and the alveolo-dental periosteum; and when it is cut off from both of these, it becomes quite dead."

The principle upon which the methods for conserving this class of teeth are founded, is the curing and rendering undecomposable the inner parts of the tooth structure, after removing the pulp remains as thoroughly as possible, by the complete and perfect saturation of those parts with carbolic acid.

I will endeavor to describe the treatment of the ordinary varieties of the disease. First, as the simplest variety we have a tooth in which it is necessary to destroy the pulp. After thorough devitalization by one or more applications of arsenical preparations, the cavity should be well saturated with carbolic acid, and the pulp remains removed through the fluid, using broaches dipped in carbolic acid to clean out the canals; after syringing with tepid water commence filling by lightly saturating with carbolic acid the end of the first piece of filling that is to be pressed to the apex of the canal.

Continued soreness from any irritation will indicate longer treatment; over treatment should be carefully avoided, for there is a point beyond which continued medication cannot be carried safely. In many cases, letting alone or giving longer intervals of rest will be the best treatment.

The next variety is that of a tooth in which the pulp has been dead some time, and with the chamber open; the tooth has now but little sensibility to pressure, or percussion; tenderness will, however, very nearly always be found over the apex of the root; the pulp is decomposed, and presents a brownish matter mixed with pus, or only pus; careful removal of the debris will be the first step, to be followed by syringing well with tepid water and extirpate with a broach dipped in carbolic acid. The critical point in this case will be in stopping the canal, and thus preventing the escape of pus, and putrefactive gases, the parts having become accustomed to this accommodating vent. So long as there is a discharge,

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the canals should not be tightly stopped : a pledget of cotton loosely placed in the cavity, will act as an absorbent and prevent food, or other extraneous matter, accumulating. The treatment should be on alternate days, or more frequently according to the urgency of the case, and at longer intervals as gradual improvement takes place. Periostitis, acute or chronic, will be most readily combated by the application over the root of a mixture of equal parts of tinct. iodine and aconite, or iodine simply, repeated as frequently as soreness arises.

The next variety is represented by a tooth which indicates a dead pulp by its dark color, soreness, etc., but in which the pulp-chamber is closed : the tooth may contain a filling or may not, and the best manner of securing communication with the chamber, will be indicated by the case ; either to remove the filling, or, if this is good and can be avoided, drill directly into the pulp-chamber as near on a line with the axis of the canal as possible ; at the same sitting thoroughly cleanse the pulp cavity and canals of all decomposing matter, and treat the same as preceding case, until all soreness and disagreeable odor is removed.

The next variety will be that of a tooth having acute periostitis from apical irritation, arising from pus exuded from the foramen of the pulp canal ; if closed, the pulp canal should be opened, which will afford more or less relief by removing the pressure induced by accumulating pus and gases. Iodine and aconite applied to the gums, cleaning and dressing the canals, and probably the administration of a cathartic, will be indicated as necessary in order to outflank the probable result of the periostial trouble—swelling and suppuration. If the inflammation succumbs, daily dressings and applications to the gums, until the soreness disappears, will prevent a return, and then the ordinary periodical dressing must follow. Sometimes the case will come to you with the swelling and suppuration already in progress ; there will be the story of hours and days of agony and sleepless nights, and the aspect presented will be swelling and feverishness of the face, partial closure of the jaws, and sometimes the eye, swollen gums, loose tooth, etc. The parts will require immediate depletion, which must be accomplished by lancing and scoring, then counter-irritants, as iodine and a cathartic ; fomentations should be applied to the face, or roasted figs to the gums to hasten suppuration. The tooth being tender and painful to the lightest touch, can generally, have but little done to it for a time, but as soon as possible the canal must be opened to afford free exit to the pus, and furnish vent to the putrefactive gases there collected. As soon as pus is formed over the apex, and indicates a disposition to “point,” it should be reached with the lance or drill. The swelling once subsided and the canal cleaned,

carbolic acid should be forced through the apex of the root by a sort of pumping motion in the canal—with a piston formed by wrapping cotton on a barbed broach. In some cases, when the fistula heals too readily, it will be necessary to insert a cotton tent, to prevent granulation, that you may more thoroughly cauterize the abscess or cyst. A fistula of long standing should be treated from the outside, as well as through the root-canal. Sulphuric acid has been recommended by those who have used it as very efficient in obstinate cases. Crownless roots which are firm in the bone and useful in mastication, are amenable to this treatment and can be made more durable. Pivot roots should also be treated, and cured before inserting the crown permanently. Incisors (with rare exceptions) can always be cured and retained. Bicuspidis are not so easily filled, the canals being frequently divided, and the roots curved, making it extremely difficult to reach the apex; gold wire is recommended to be inserted in small canals. I generally use a chloroform solution of gutta-percha, then fill with tin foil. I seldom use oxychloride at the apex, having experienced trouble by its use. But if the canals cannot be found, then careful saturation must be depended on, and temporary filling remain longer than usual. Buccal roots of upper molars are perhaps the most difficult of all other varieties in obtaining entry to the canals; when impossible, saturate with carbolic acid thoroughly and proceed to fill pulp chamber. In old age, or middle life, the root-canals of lower molars are seldom capable of being well cleaned, their passages being generally flat, and very narrow and dangerous to drill, if the roots are curved; this being the case, saturation is the only course left I know of.

The central fact and principle of this method of treatment, is the repeated and continued saturation of the internal parts of the tooth with carbolic acid. This I believe will result in perfectly destroying all putrefactive matter in the pulp canal, in the dentinal canaliculi, and their ramifications, and in the chrystalline substance of the dentine; not only are putrefactive matters thus destroyed, but live organic tissue is converted into the insoluble and indestructible carbonate of albumen. From this substance no putrefaction can arise, and the clogging of the canaliculi by it will prevent the entry of organic fluids from the cementum, which if once in the pulp-canal, or the inner canaliculi of the dentine, could not return and would decompose. When the pulp-canal of the root of a tooth has been thus saturated, and after all sensibility of the tooth or the parts about it has disappeared, it is ready for filling. Oxychloride of zinc may be used in a fluid state, and forced in with the gold wire to remain there, or a wire made of pure tin, which I have found to answer equally as well. Tin foil I generally use when it can be thoroughly compacted. Some

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writers advocate temporary filling (in every case) with oxychloride to remain a month or longer. If the tooth is to be filled with gold, I think it is better to do so; the pressure required to manipulate gold is liable to produce serious irritation, if done too soon. When amalgam is to be used, I generally fill at the same sitting, except when the color of the tooth is to be restored, then fill with oxychloride and leave for a day or two.

When crowns are completely excavated within by caries so that little more than the enamel remains, they should first be filled with porcelain or os artificial. This material being a cement adheres to the walls, and makes a stronger support for the permanent filling to be subsequently inserted.

Rather than bleach discolored teeth by chemicals (which is not generally satisfactory) a better method is to cut away as much of the discolored dentine as can safely be done without endangering the strength of the crown, and fill with light colored cement which will show through the enamel. The chlorine of the cement will in time bleach the dentine.

Failures in the treatment by this method arise, (1st) from irregular or entire neglect of attendance by the patient, (2nd) from the impossibility of finding and filling the root canals, (3rd) from forcing the wires in small roots through the foramen, and from drilling through the side of the root in search of the canal. In chronic fistula and bad constitutions you are forced to proceed with little hope and without promises.

[An excellent article by Geo. H. Weagant, L.D.S., Cornwall, Ont., on "Polishing Disks," illustrated with cuts, will appear in our next issue. It should have appeared in this, but cuts did not reach printer in time for publication.—ED.]

Societies.

Notes from Proceedings of Dental Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN, FEB. 4, 1889.—Mr. Henry Sewill, M.R.C.S., L.D.S., President, delivered his inaugural address, from which we make the following extracts:

Notwithstanding all that has been hitherto accomplished, there yet remain unfinished tasks sufficient to satisfy the scientific ardour of our most zealous labourers. But of the questions which are still left for solution, perhaps those concerning the etiology of caries are to us among the most difficult as well as interesting. To illuminate all that is dark in our knowledge of the prime cause of tooth decay, inherent structural inferiority of enamel and dentine, demands far-reaching research. Evolution is an agent;

for we have the demonstrated fact of the diminishing development of the organs of mastication from the anthropomorphic apes by regular gradations through savage races of man to the civilised European. The question of heredity is involved ; for we see the dental characteristics of parents, even in the quality of the tissues, transmitted to children ; often the teeth of offspring will closely resemble those of one parent, the girls, as a rule, taking after the father, the boys after the mother. Again, disease acquired by parents often leaves its mark upon the tissues of their offspring ; and although the typical teeth of Hutchinson, the significance of which is unquestionable, are present in only a small proportion of undoubtedly syphilitic children, their occasional occurrence clearly shows the power of hereditary disease to influence the development of enamel and dentine.

When we consider that differentiation of the rudimentary mucous membrane into the germs of the future teeth is demonstrable before the seventh week of intra-uterine life ; when we recollect that hereditary bias largely governs the formation of the organs, and when we bear in mind the early periods in infancy and childhood at which the outer shell of temporary and permanent teeth has become calcified and physiologically unalterable it seems evident that to produce sound dental tissues we must, above all direct our energies to improvement of the race.

Disease is no necessary accompaniment of civilization. Most diseases which lead to deterioration of the human species, and leave their mark upon the organism, including the teeth, are at this day preventable, and the time must surely come when every zymotic malady shall be as unknown in civilized lands as the plague ; when scrofula and rickets, and all diseases the products of darkness, filth and starvation, shall no longer exist ; and when ignorance, sickly sentimentalism, or pseudo-humanitarianism shall no longer be allowed to stand in the way of prevention of scourges like small-pox and syphilis. With finer physique, finer teeth will appear ; and in presence of the fact that man is steadily gaining more and more the conscious power of moulding his physical future, it seems absurd to suggest that in the end there can be evolved a toothless race. Our concern is, however, more urgently with the present than the future, and if we cannot help materially towards the production of sound dental tissues in our time, we can, at least, do much to prevent their decay, and do more to repair them when decayed.

Vitiation of the secretions of the mouth, a pre-disposing as well as the direct cause of caries, has not been hitherto exhaustively investigated. This, not so difficult a subject as the last mentioned, is equally important. If we were fully acquainted with the chemistry of the oral fluids in disease, more certain methods might be devised to prevent those changes which

lead to the formation of acid and give rise to putrefaction and fermentation in the vicinity of the teeth.

Our knowledge of the process of disintegration of enamel and dentine in caries is almost complete, yet new facts might probably be of further practical value. The principles of treatment, the right method of preparing and stopping simple cavities, were empirically established many years before the physiology of the tissues was understood, and it is hardly possible that those principles can be overthrown. But instruments, materials for stopping, and methods of working them may be improved. The mechanical genius of our members may find, and does find, exercise in improving our present instruments and in devising new ones. This in itself is a large subject, and very attractive ; but I must not now dwell upon it.

There is vast scope for scientific work to be directed towards the improvement of materials for stopping. For these we are too much dependent upon manufacturers, many of whom, there seems reason to fear, are imperfectly acquainted with the chemistry of the compounds which they prepare. A thorough research into the metallurgy of gold might lead to the production of foils capable of more rapid and certain manipulation than those with which we are now supplied. But of much greater importance than the improvement of gold do I hold the improvement of amalgams and all the class of plastic fillings. I need not enlarge upon the superlative beauty of gold stoppings from an artistic point of view, nor emphasize the fact that the dentist who has made himself a first rate gold-stopper has mastered the greatest difficulty of his craft ; and that to him no other operation will appear hard or laborious. But to insist upon gold stoppings for every case in which this material could be fitly used would be about as reasonable as to prescribe a warm winter climate for every case of incipient phthisis in which it might be beneficial. Gold fillings for carious teeth, like warm winter climates, must be considered as luxuries beyond the reach of the vast majority of sufferers, and those most needing relief ; they are too costly. Besides this, gold fillings involve the infliction of pain and fatigue which cannot be borne by every patient.

It was once the fashion of a certain class of writers to denounce the use of amalgams as a species of malpractice approaching crime ; and dire were the injurious effects ascribed to these substances. These prejudices were based upon impressions which had no scientific foundation, and it is not necessary to again expose their falsity. An ideal filling would, however, not be metallic. It would be a cement which, applicable in a condition thoroughly plastic and adhesive to the walls of the cavity, would, on setting, approximate in its character to dense enamel. The advances which have been made in the preparation of non-metallic

cements go to show that it is not beyond the power of chemistry to produce such a material.

Simple caries and the operation of filling by which it is treated are peculiar, there is nothing quite like them in general pathology and surgery ; but when we turn to the inflammatory conditions occurring within and around the teeth we tread more common ground ; for the processes of inflammation, modified only by the anatomical peculiarities of the part, are essentially the same in all vascular structures. In the case of the teeth we have such facts to consider as that the pulp is confined within the rigid walls of a chamber which allows neither of swelling, nor of the escape of exudations ; that lesions of the hard tissues are incapable of natural repair ; that an exposed pulp does not tend to heal and cicatrize, and, therefore, if it is to be preserved, needs to be hermetically sealed beneath an artificial covering. Except in cases where the cavity is readily accessible and bounded by strong walls of sound tissue, it seems questionable whether it may not be better to destroy a diseased pulp and extirpate it rather than attempt to save it, seeing how easily the operation may be performed, and how well the teeth endure after antiseptic treatment.

A disease which seems greatly on the increase at the present day, and which is the sole existing opprobrium of dentistry, calls urgently for investigation. Of its etiology and pathology we are almost completely ignorant, and its treatment is proportionally unsatisfactory. I allude to the malady which consists of slow wasting of the sockets, and loosening and shedding of the teeth, and which is commonly designated *pyorrhœa alveolaris*. I have formed the opinion that cases of this affection may be grouped into three classes, and that they are closely analogous to varieties of diseases of the hair commonly classed under the term "baldness."

In one variety there is little or no inflammation or discharge until the final stage ; and the cases occur mostly in robust healthy individuals, although very often of the gouty diathesis, and with massive well-formed jaws and teeth free from caries. These cases are like those of simple premature baldness. In a second group there is present either general debility, or one or another of the dyscrasiæ such as are so often associated with alopecia. A third class of cases resembles sycosis—although I do not suggest that their etiology is identical—and these are the cases of true *pyorrhœa alveolaris*. I have long made this comparison between this disease and affections of the hair, and I was much interested to learn lately that a similar analogy had been drawn by Mr. Jonathan Hutchinson.

Among other topics worthy of full discussion to which I am tempted to refer, but to which time allows me only to allude, antisepticism as applied in dental surgery might well occupy a lengthy essay. I must not, however,

pass beyond my purpose, which is to suggest how extensive are the fields for our labour.

Dentistry does not, like general surgery, involve direct issues of life and death, but, nevertheless, the theories at the base of each are identical. The art of surgery was for ages founded in greater part on empirical knowledge, that is, knowledge derived solely from experience, and neither explainable nor verifiable by the imperfect science of the day. That error should flourish, and that progress under such conditions should be halting and uncertain, need excite no wonder. We all, on the other hand, can review the epoch-making discoveries—the outcome of true knowledge—by which, from time to time, long and sure strides in advance were made possible. Indeed, the history of the healing art in every department, and not much less in dentistry than elsewhere, brings out in bright relief the fact that practice can have little permanent growth unless based upon the sure foundation of demonstrated truth ; and can advance only with the general advance of natural science. Never was the prospect of improvement more hopeful than it is now, and in view of the wonderful progress which has been made within our own times in the investigation of every class of natural phenomena, it cannot be believed that any of the problems in dental science which remain unexplained will continue for ever insolvable. It would be rash, indeed, to ascribe limitations in any direction to future scientific achievement. For instance, we ourselves have seen chemistry advance by rapid steps to a position in which the growing wonders of synthesis no longer surprise us, so that we are prepared to take, as a matter of course, the artificial production in the laboratory of any definite chemical compound found in the organic world.

In physiology we have witnessed, as a crowning marvel, localization of the functions of the brain and almost complete unravelment of that tangled web, the nervous system.

In etiology and pathology the study of micro-organisms has been surely leading to great results, and the fundamental fact has been established that the processes of fermentation and putrefaction, which were formerly looked upon as of purely chemical character, are essentially connected with certain low forms of organisms.

These discoveries in their turn have led to the science of bacteriology, which has made of surgery a modern miracle. Passing from the time when such operations as trephining and abdominal section were very frequently fatal, we have seen arrive the day when the surgeon, almost certain of the result, no longer hesitates to act, because of the intrinsic danger of any operation, and when he does not shrink from opening the cranial cavity and searching for and removing the cause of disease from within the substance of the brain itself.

Science, by which alone such achievements have been made facile, can advance only by means of observation and experiment ; but observation and experiment must be exact ; the record of mere impressions, unverified by instruments of precision, by balance, thermometer, microscope, and test-tube, are, as a rule, worse than worthless. He who in the investigation of phenomena accepts the evidence of his unaided senses can never form a true conception of the nature of things. No sense, for instance, is more easily deceived than sight, and to trust to that alone is to believe in a host of falsehoods, among which that the sun revolves around the earth will be far from the most preposterous. Healthy scepticism is the only safe habitude for the scientific intellect ; it is that which every scientific explorer, worthy the name, cultivates within himself and expects to find in others. There is no shame in occasional error. The pithy phrase in the American Minister's farewell speech at the Mansion House a few days ago, applies as forcibly to the pursuit of science as to any other work of life—"the man who makes no mistake does not usually make anything."

In the promotion of scientific progress, exposure of old error thus stands in importance, second only to demonstration of new truth ; and, therefore, workers who may find it difficult to take up a fresh line of research may yet perform good service by examining the facts and theories of others, and subjecting their statements to searching criticism and discussion. If the future of biological science is full of promise, it is mainly because every new statement is forthwith submitted to examination ; progress was formerly long delayed for want of careful sifting of the evidence on which generalizations were formulated, and because the testimony of a great authority was often accepted without doubt or question.—*Transactions of the Odontological Society of Great Britain.*

FIFTH, SIXTH, SEVENTH AND EIGHTH DISTRICTS DENTAL SOCIETIES OF NEW YORK STATE, OCT. 25TH, 26TH, 1888.—*Continued from page 20.*—Dr. A. P. Southwick, Buffalo, spoke on the effects of heat on rubber. To prevent it becoming porous in vulcanizing do not burn it. Rubber will not stand over 300°F. without injury. If a block of teeth is removed from a set made as they usually are, after it has been worn, a space will be found between the teeth and the rubber filled with the debris secretions of the mouth. The lowest heat at which vulcanization can be accomplished is best for the fit, because there will be less contraction in cooling than if the rubber has been subjected to a higher temperature. Too much heat accounts for most misfits. Dr. Southwick showed two plates, one vulcanized at 280°F., the other at 340° or 350°F. The difference in their texture was at once apparent. 280° to 285°F. is the highest temperature that

should be employed, and the time should be two hours. To make misfit plates fit the casts, save the casts ; if the plates won't go on the cast warm it, and adapt it. Dr. Southwick spoke highly in favor of copper amalgam as a tooth saver. Do not put it in a tooth if you expect to have to remove it again. Dr. M. L. Rhein, New York, read a paper entitled, "Studies of Pyorrhea alveolaris," in which he reiterated the general methods in use ; laying stress upon absolute cleanliness ; the injection into the pockets of solution of mercuric bichloride in hydrogen peroxide. Dr. W. C. Barrett read a personal letter from Dr. W. D. Miller, of Berlin, in which he gave his present view as to the three factors concerned in the production of this disease : 1st, a certain predisposition ; 2nd, a local irritant ; 3rd, bacteria. A predisposition to the disease consists in a lack of tonicity. Dr. Barrett, speaking for himself, simplified the matter, by remarking that there is a deposit upon the teeth near the gum-margin, which produces an irritant effect upon the surrounding soft tissues, and the trouble goes on, the deposit increasing and the irritation growing, until the tooth drops out. The first indication is to remove all the deposits. Often the pockets containing the deposits are hidden. The other day, in treating a case, he found a tortuous pocket extending clear to the apex of the root. The deposits should be removed thoroughly ; the edges of the alveolus should be dressed to stimulate it to keep it in good condition. We will meet with failures until we know the cause which produces the condition.

Dr. Darby, referring to the subject of competition among the dental colleges, said that he had no doubt that all who have the good of the profession at heart are in favor of longer terms for the college sessions. He had it in his heart to say that there are too many colleges, even though it might be charged that he was actuated by selfish motives. There are too many colleges; only because they make a competition for students which should not be found in professional schools. The moment that element is introduced, professional education is degraded. His reason for thinking that there are too many schools, is that most of them depend upon the fees received from students for the means to pay their expenses, and there is consequently an unseemly scramble for students, with the result that some of those accepted are not the proper material to make good dentists. In some of the smaller cities where colleges are located the tendency has been to give too little education, especially on the practical side. They have not the facilities, not sufficient patients for the clinical needs of the students. If he were to mark out an ideal course in dentistry, he would extend the term to seven or perhaps nine months, and require three years' study. Some schools expect to send out their students as good dentists with less than ten months actual study, but it cannot be done. He is,

therefore, thoroughly in favor of extending the time of study. By making the period of study three years, the student would be able to get one year of practical instruction in the laboratory, which is just what he needs. Then give him two years instruction in the higher branches. Those who have made for themselves a name and a reputation as dentists without the help of higher education, and whose ability is well known, may say that they had no need for these things, and that they don't care for their sons who are to succeed them to spend their time in acquiring them, but it must be remembered that conditions have changed. The demand is now for a higher grade of average attainments than was necessary a generation ago, in order to maintain a proper professional standard. He would not say that more anatomy, or more physiology, or more chemistry is needed, but he would give students a month or two more in dental histology and work in the histological laboratory than is now possible.

Dr. Marshall was not aware that he had anything new to add to what he has in other places said upon the subject of dental education. Some may not agree with him that dental students to-day need a more thorough knowledge of the fundamental sciences of medicine than they are receiving. Dr. Darby says they have enough anatomy, physiology, materia medica, etc., in the courses as now prescribed, but the speaker thinks that in most at least of the purely dental colleges the students only get a sort of a kindergarten knowledge of these subjects,—that is, merely the first principles. He believes that dental students should be examined in all the fundamental branches just as the medical men are; that in these studies they should be educated as medical men. It is not necessary for them to take obstetrics or gynecology, but they should have everything pertaining to the principles of surgery. If he could have his way he would require that all students intending to become dentists should take the medical degree first, and then begin their special training. Let them have the fundamental first before beginning their special studies. If one of you had a defect of the eye, would you go for treatment to one who only knew the anatomy of the eye? Certainly not; you would go to the best educated man you could find, who with a medical degree as a foundation had taken the special studies of the oculist. There is a tendency in the educational ranks to advance. He is sorry to see that some of the schools accept students who have not the necessary preliminary education. The best medical schools do not take that class of material. Why do we not educate our students in that way if we want to be recognized as the equals of medical men in culture? We begin at the wrong end; we put the cart before the horse by beginning our special training before we have laid a broad and deep foundation of the fundamental sciences upon which all departments of the healing

art should be built.¹ By this system of education we cannot expect to take rank as medical men, and be competent to treat all those diseases of the mouth and adjacent parts which are the legitimate province of the dental and oral specialist. The arguments urged against medical training for dentists have no real or sensible foundation. It takes time and money to prepare for any of the learned professions, and if one would excel he must be thoroughly prepared for any emergency. Shall the dental specialist be content with a smattering of that knowledge which, if possessed in a liberal degree, would make him eminent, and the peer of any in the other professions? No! He has a better opinion of the future practitioners of dentistry than to believe that they will be willing to be hampered by such poor preparation for their life-work as that which clogged the efforts of many of their predecessors. He believes the time is coming, and that right soon, when the public and the profession will demand of those entering our ranks the same liberal education, the same general culture and equal professional knowledge and skill, that they expect to find in the other learned professions.

Dr. J. Branston Willmott, Toronto, had been asked to prepare a paper on the subject of education to be read here, but he had not had the time to do so. He finds himself in a peculiar position. He represents an institution which has been twice vetoed by the National Association of Dental Examiners as "disreputable." They have placed us on the same plane as Delavan. We have also been rejected by the National Association of Dental Faculties, and he did not know that the applications for membership in that association would be renewed. In the Dominion of Canada we live under what is known here as a "grinding monarchy." In conducting our school we don't do as we please, but we are obliged to do what the law says. Every student passes an examination which the teachers, because they are interested parties, have nothing to do with. They have taught the student what he knows, but they have no part in ascertaining whether he has acquired the proper amount of information. We have no competition. The whole matter of dental education in the Province of Ontario is placed in the hands of a board elected biennially. This is not a close corporation, but so long as they keep within reasonable bounds they can fix the standard just where they will. The speaker's judgment on this subject is practically incorporated in the curriculum of the Royal College of Surgeons of Ontario. We lay good stress on a preliminary examination, as we think there is no other calling where wide general information is more important than in dentistry. The great bulk of our students are teachers; some of them come from the colleges, but most of them have been teachers, and they have learned to control themselves in the presence of their pupils.

Time is an essential element in the education of a dentist. A student when graduated should be reasonably well qualified to enter upon practice. To become thus qualified involves the training of the mind, of the eye, of the hand, and of the judgment. Perhaps the mental training may be acquired in the usual two years devoted to the education of dentists, but the proper training of the other faculties—the eye, the hand, the judgment—necessitates a longer time. Our judgment is that three years' study of twelve months each should be demanded before graduation. We have adopted the English apprenticeship system as a further aid to the manipulative education, and we require attendance at two sessions of five months each exclusive of the time spent in apprenticeship. He is quite willing to agree that attendance at two sessions of four and one-half or five months, without other training, is not enough to educate a man to practice dentistry.

Another point to which he wished to direct attention is the importance of an independent final examination. He has on more than one occasion been struck by the small percentage of the students coming up for final examination in the American colleges who fail to pass. In the Royal College of Dental Surgeons of Ontario, the professors who teach have nothing to do as such with the examination of the students for the license of the school. The examinations are conducted by an independent body, and the teachers think they do very well if not more than fifteen or twenty per cent. of the candidates fail to pass. In fact, they usually expect nearly twenty per cent. That proportion of failures is because those who examine have no financial interest in the result of the examination. They are there simply to find out what the candidates who come before them know. If an American school with a class of say two hundred students were to "pluck" fifty, what would be the result? The next year there would be a much smaller class, but a correspondingly higher standard. He thinks that if the National Association of Dental Faculties would agree to put the examination of the students attending the colleges under independent auspices, they would do more for the raising of the standard than by any other one thing. He would admit that 'not much exception can be taken to the course of the better class of dental colleges, but he does think they make a great failure when they come to the final examination of their students; that under these examinations, as now conducted, the D.D.S. does not certify that the young man who receives it has reached a high standard. We are not prepared to lengthen our term beyond five months (exclusive of the examinations, which make it practically six months). If the work is carefully insisted on, in a term of five months the student will get a pretty good grasp of the subjects taught, but these of course do not

NOTES FROM PROCEEDINGS OF DENTAL SOCIETIES

include the manipulative training before referred to. Oral surgery, as will be seen by reference to the curriculum, has been transferred to the medical course.

One word more about the "disreputable" stigma before referred to. The Royal College is governed in its actions by what the law says. When the members of the Association of Faculties shut down on the application of this college they virtually stamped it as disreputable in their eyes. He wanted to say that the College has formed a union with the Toronto University, and no degree will be conferred until the candidate has spent three full years in the study of dentistry. They hope to be able to relieve somewhat the pressure on the Philadelphia schools. They would be delighted if the colleges on this side of the line would raise the standard of their preliminary examinations. About a score of Canadians have expatriated themselves for the winter because they couldn't pass the matriculate examination of the Royal College of Dental Surgeons. They don't object to the three years' course, if they could only get started.

Dr. W. H. Dwinelle, New York, thought that thirty odd years ago, in a valedictory address at the old college in Baltimore, he had placed his idea of the standard of dental education above anyone else he knew of. He held then that as the office and privilege of the dentist was to deal with suffering humanity and bring it up to its primal condition, there was no device, no principle, no knowledge, that could be made tributary to that end which should be neglected. There has been a tendency on the part of some of the projectors of dental education to diminish rather than increase the standard. Dentists should be accomplished in all branches of knowledge. This has perhaps not been possible in the past, but we should in the future raise the standard as high as possible. He indorsed Dr. Marshall's idea. Such a course may not be practicable now, but the future is before us and it may yet be accomplished.

Dr. Barrett thought that he need not remind his hearers that the standard of dental education needs raising. In Europe the D.D.S. has fallen into disrepute, so that he is glad to see a disposition to raise the standard to what it should be. It has been too low in the past, and the colleges have had the reputation of granting the degree all too easily. There are men wearing the degree of D.D.S. who can scarcely read or write. Of course, the granting of the degree to such men is not done to-day. Time was when the practice of dentistry was a reproach to a man, but the dentists of that day were not, as a rule, men of education and refinement. To-day the men in dentistry have some scientific knowledge, and the growth is going on. The time is coming when to be a dentist will be to be known as a man of science all over. The schools are helping in this work, and he

hopes to see the time when students will not be received unless they have sufficient education for the full comprehension of all the laws of science ; when the competition of the schools will be for the best and most thorough system of instruction, when they will each strive to see which can give the most for the money. He thinks all present have been broadened and enlightened by the discussion, and he moved a vote of thanks to those who have spoken.

(To be continued.)

Notices of Society Meetings.

EASTERN ONTARIO DENTAL SOCIETY.—The Tenth Annual Meeting will be held in Cornwall on Tuesday and Wednesday, the 18th and 19th of June next.

All communications in reference to the above should be addressed to W. Brace, L.D.S., Secretary, Brockville.

MASSACHUSETTS DENTAL SOCIETY.—The semi-annual meeting will be held at the Institute of Technology, Boston, June 5, 6, and 7. From the preliminary programme issued by the Executive Committee, of which Dr. H. C. Meriam is chairman, and Dr. E. O. Kinsman is secretary, (15 Brattle Sq. Cambridge, Mass.) there is every certainty of an instructive gathering. Boston has not yet set up its claim to be the hub of the dental universe, but everybody who knows anything of our Massachussets confrères, knows that whatever they undertake to do in this direction they are sure to do well. The full programme of the meeting will be ready in May. Do not stay at home if you can go.

Selections.

Anæsthetics in Dental Practice.

In *The Journal* of March 2 we noticed editorially a case of death from chloroform in a dentist's chair. Dr. J. C. Reeve, of Dayton, Ohio, has kindly sent us the October, 1888, number of the *Dental Register*, containing an article on "Anæsthetics in Dental Practice" from his pen, which, on the subject of anæsthetics, is one of the ablest in the profession. Dr. Reeve says :—"There is no professional duty I perform so unwillingly as that of administering an anæsthetic for dental purposes, no fee that I consider so hardly earned as that which I receive for this service. At the same time I am frequently giving anæsthetics for general surgical purposes without hesitation and without undue anxiety." Again he says :

ANÆSTHETICS IN DENTAL PRACTICE

"Are anæsthetics more dangerous in dental practice than in general surgery? The answer must be unqualifiedly in the affirmative. Without attempting to collect statistics take only those of the Royal Medico-Chirurgical Society and those of Sansom. The one gives 8 cases of death under tooth-drawing out of 100 of all operations, and the other 12 out of 107. Here then is nearly 10 per cent. of all the deaths occurring in dental operations. But this statement alone gives no just idea of the relative mortality. This could only be accurately ascertained if the total number of administrations in all surgical operations was known. Certainly anæsthetics are administered for general surgical purposes hundreds of times for once in dental practice, and if so, then the relative number of deaths under tooth-drawing is enormously large. The causes of the high rate of mortality during this particular operation are not far to seek. I do not believe that the entrance of blood into the air-passage is very important. Several deaths, however, have been caused by an extracted tooth falling into the larynx, without doubt due to the position of the patient. Anæsthetics should never be administered unless the patient be recumbent. This is not, however, in my opinion, a very potent factor, and was fully considered in the paper. Another is the particular nerve involved in the dental operation, the acute pain caused by injuries to it, and the powerful effect of sudden impressions upon its branches upon the great and vital processes of respiration and circulation. By sudden impressions upon this nerve more than any other, is that inhibition of the heart's action brought about which is sudden death. Far more important than all, however, is the fact that the induction of anæsthesia for tooth-drawing is likely to be incomplete, and will pretty certainly be so if the operator is also the administrator. Now it is a positive doctrine of the highest and latest authorities that such reflex actions as above given are increased under chloroform, that a state of partial anæsthesia is therefore one of especial danger, and especially so if the pain produced is at once sudden and sharp. It is gratifying, therefore, to see that this source of danger is fully recognized by the author of the paper, although it is not emphasized as it deserves to be. There is no more seductive procedure than to give a few whiffs of chloroform for the extraction of a tooth; there is no more dangerous practice. If an anæsthetic is given at all, it should be given until the patient is 'off.' There is no plainer doctrine than this connected with the subject."

Dr. Reeve wholly dissents from the doctrine that a full dose of whiskey before the administration of the anæsthetic secures safety. There are on record many cases of death from chloroform in which an alcoholic stimulant was given just before the fatal inhalation. In regard to bromide of

ethyl, Dr. Reeve thinks it is a dangerous agent, on account of its bad record, and its marked perturbative action on the heart. He does not know of such objections to the use of nitrous oxide as will justify dentists in resorting to stronger anæsthetics. The objections adduced, he says, "seem but trivial when the tremendous responsibility is considered which the dentist takes upon himself when he proceeds to administer chloroform or ether, when the awful calamity of a sudden death from these agents comes to mind."

It may be said, finally, that when a dentist administers chloroform for the purpose of pulling a tooth, he incurs a responsibility that he has no right to incur.—*Journal of the American Medical Association, Chicago.*

A CASE OF DENTAL FISTULA OPENING ON THE MAMMARY GLAND.—The following case, reported by Dr. Nicolai, of Stuttgart, Germany, in the *Deutsche Monatsschrift für Zahnheilkunde* for December, 1888, illustrates forcibly the importance attaching to the necessity of placing the mouth at all hazards in a perfectly physiological condition.

Dr. Nicolai says: A lady, 32 years of age, who has not had her teeth examined for four years, presented herself to me to have her teeth placed in good condition. This necessitated cleaning the teeth, the removal of salivary calculus, and the introduction of eleven gold, six amalgam and two cement fillings.

On the completion of these operations, the mouth was in a normal healthy condition, with the exception of the lower left first molar, of which nothing but the roots were left; these were broken, and underneath the margin of the gum. They were filled with the ichorous products of decomposition, and their margins were overhung with the inflamed, tumefied gum. This condition of affairs has prevented the lady from masticating her food on this side for some time, and as a natural result the right side alone was used. After having performed all the necessary operations in her mouth, I endeavoured, by naming all the disadvantages arising from the presence of the roots, to convince her of the necessity of removing them. I told her that the left side of her mouth was completely useless, that these roots have caused diseases of the two adjoining teeth of the same jaw, and of the articulating tooth of the upper jaw; that a tendency to the recurrence of caries still existed, that inflammation of the gums would always exist and that the breath will be always tainted. All these efforts were futile and were met with the single statement that, while the roots were not painful, she would not submit to their removal. To diminish the jeopardy of my work to the minimum, I concluded to place the roots in as good a condition as I could and, if possible, make them serviceable

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for mastication on that side of her mouth. Removing the tumefied, spongy gums, and all products of decomposition, and by means of the bur the ichorous contents of the roots, I adopted the most radical means of disinfection known to science, capped the roots with red gutta-percha, and dismissed the patient, satisfied in my belief of having aided her to the best of my ability.

The following day the patient's husband came to my office, hastily requesting a few moments' interview. "What have you put in the lower tooth of my wife? Was it iodoform, carbolic acid, creosote, or some such substance having a marked odor?" On being answered in the affirmative, he merely thanked me, stating that the family physician would call on me. In astonishment I waited the latter's call, who stated to me that the lady had had a slight discharge of pus for the last eight months, at a location about 1 cm. above the left nipple of the breast. There was no apparent disease of the breast. At first cold poultices were applied, these were succeeded by warm ones; later, a probe was introduced following the channel upward, and this was followed by the injection of astringent remedies, and finally by cauterization of the wound. The discharge, however, continues. To-day the patient claims that she discovers the odor of the medicines used in her tooth yesterday, in the discharge from the breast. He wished to know whether it was possible that the lady is in error, or whether it is possible that there is some connection between the breast wound and the roots.

I have had a case of pus inundation where the discharge took place in the neighbourhood of the shoulder. Many cases have been reported in our literature, among others by Carabelli, but no case of infiltration to the mammary gland. The connection, if any exists, can be ascertained with certainty. If it is true that the medicaments used have passed from the roots into the wound on the breast, a harmless colouring would also do so. A cochineal solution was injected into the root-canals, and the following day the discharge from the breast was coloured, thus positively establishing the connection. I concluded to extract the roots and thus, by removing the primary cause, cure the ailment. The examination made after the extraction of the roots proved that the pus had passed through the basilar portion of the lower maxilla, followed the border of the sternocleido-mastoid muscle, perforating the strong fascia of the platysma myoides, it followed the pectoral muscle and infiltrated the tissues of the mammary gland, discharging into the external world according to the laws of gravitation. Phenol water and boracic acid were afterward used. In about twelve days the wound on the breast was healed.—*The Dental Review*, February, 1889.

Our Canadian College.

The annual examinations of the College were held in the Medical Council Hall, Toronto, on the 5th of March. The following examiners were present:—Dr. C. S. Chittenden, Hamilton; Dr. J. B. Willmott, Toronto; Dr. Rowe, Cobourg; Dr. R. M. Fisher, Warton; Dr. C. A. Martin, Ottawa; Dr. G. C. Davis, London, and Dr. J. G. Roberts, Brampton. We warmly welcome the following gentlemen, who obtained the title of Licentiate of Dental Surgery, with the right to practice dentistry in Ontario:—A. Hugh Hipple, St. Catharines; J. W. Oakley, Toronto; R. G. McLaughlin, Brampton; Charles Ferguson, London; Charles S. McLean, Brockville; J. J. Kerr, Campbellford; G. P. Matthewman, Ottawa; A. F. Webster, D.D.S., Toronto; J. H. Swann, Toronto; Ed. Eidt, Berlin; J. T. Ireland, Seaforth; H. P. Martin, Toronto; N. W. Cleary, Renfrew; Andrew Rose, Picton; E. Cunningham, Collingwood; A. J. Smith, Prescott; C. A. Risk, Aberfeddy, and George McDonald, Arnprior. J. B. W. Topp, Bracebridge, will take some subjects again in June. Thomas Bruce, Toronto, who was ill in the hospital, will also be examined in June. Faculty gold medalist, A. Hugh Hipple; College gold medal for practical work, A. F. Webster, D.D.S.; College silver medal for practical work, C. A. Risk. Honor men: A. Hugh Hipple, R. G. McLaughlin, J. W. Oakley, and Charles S. McLean. The following juniors passed the intermediate examination:—Mark Binkley, G. F. Wright, Sylvester Moyer, S. A. Aykroyd, Thos. Butler, Benjamin Gallop, G. P. Allen, W. H. Steele, J. J. Wisser, M. G. McElhinney, M. Cavanagh, C. M. French, James Leatherdale, J. A. Armstrong, Oliver Martin, A. T. Pearson, Wm. R. Hamilton, A. J. Edwards, J. F. Simpson, J. F. Chittenden, A. E. Sangster, G. F. Belden, J. L. Young, Ira Bower, M. W. Sparrow. S. Burns will take a supplemental in October in Surgery; H. E. Harris and A. A. Shaw in operative dentistry; H. E. Harris, W. W. McPhee, and G. W. Lloyd in physiology.

The following are the examination papers. They will show our readers that "the boys" had to know something:—

MECHANICAL DENTISTRY.

1889. *Time—Two hours.*

C. A. Martin.

PRIMARY CLASS.

- 1—Describe indications necessitating the extraction of teeth, the principal dangers connected therewith, and how to guard against them.
- 2—Give component parts of Black, Red, and Pink Vulcanite.
- 3—In repairing plates how best secure adhesion of new to old vulcanite?
- 4—Describe process of constructing dies and counter dies for swedging plates; name the metals that are best for the purpose.
- 5—How prevent ebullition of metal after pouring?
- 6—How is Plaster of Paris prepared; how increase its hardness and hasten its crystallization?

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FINAL CLASS.

- 1—How soon after extracting a number of teeth would you consider the mouth in fit condition to bear a plate? Give particulars of condition.
- 2—What roots should be retained where a plate is to be inserted? When and why retained?
- 3—Describe preparation of roots and shape of exposed parts where artificial teeth are to rest.
- 4—To retain a Gold Plate with one or two Superior Incisors, should narrow or broad clasp be used? What teeth should they be clasped to? What form of clasps are injurious, and how?
- 5—How prevent blowing or sponginess in thick parts of Vulcanite Plates? What can be added to prevent such results?
- 6—Describe process of preparing Root, constructing and inserting. What in your opinion is the best Pivot Tooth.
- 7—How best secure Gold Crowns to Molar and Bicuspid roots? How obtain proper articulation.

DENTAL MATERIA MEDICA AND THERAPEUTICS.

1889. *Time—Two hours.*

Dr. Roberts.

PRIMARY CLASS.

- 1—Define the following terms as used in Pharmacy:—Essences, Infusions, Extracts, Alkaloids, Tinctures, Distillation, Decantation, Delequescent, Clarification, Filtration.
- 2—Classify the following remedies:—Iodine, Opium, Aconite, Creasote, Ol. Caryophylli, Hydrarg. Bichlor., Arsenious Acid, Nitrous Oxide, Tannic Acid, Zinc Chloride.
- 3—State the Therapeutical action of the following:—Diaphoretics, Rubefacients, Sialogogues, Anæsthetics, Disinfectants, Cathartics, Escharotics, Sedatives, Antacids, Epispatics.
- 4—Name two drugs in each of the following classes:—Astringents, Arterial Stimulants, Tonics, Hæmastatics, Alteratives.
- 5—To what measures are the following approximately equivalent:—Gill, Teaspoon, Dessertspoon, Tablespoon, Wine Glass, Teacup?

FINAL CLASS.

- 1—What is the difference in action locally between—(1) Aconite and Iodine, (2) Nitrate of Silver and Caustic Potash?
- 2—What are the antidotes for the following drugs and how should they be administered:—Arsenic, Aconite, Carbolic Acid, Opium?
- 3—Name four drugs in each of the following classes used in Dental practice:—(1) Antiseptics, (2) Topical Sedatives, (3) Deodorizers, (3) Topical Stimulants, (5) Hæmastatics.
- 4—Give the Source, Preparation, Physical properties, Therapeutical action and Use in Dental practice of the following:—As₂ O₃—Creasote, Tannic Acid, Arnica, Opium.
- 5—Write prescriptions for:—(1) Dentifrice for ordinary use, (2) Stimulating Astringent Mouth Wash, 4 oz. mixture, (3) A 4 oz. mixture of Tartrate Potassa, Iron (Mur) and Elixir Cinchona, of which a tablespoon shall contain 5 grains Potassa, 5 Iron, and 2 drachms Elixir of Cinchona, (4) A half-drachm solution of Morphia to be administered hypodermically in 2 minim doses.

SURGERY.

1889. *Time—Two hours.*

Dr. R. M. Fisher.

PRIMARY CLASS.

- 1—What would complicate dislocation of inferior Maxilla rendering reduction difficult?
- 2—Treat a deep incised wound with division of artery, nerve, and tendon.
- 3—Describe briefly the process of inflammation in the soft tissues.
- 4—Why do not all wounds heal by first intention?
- 5—Describe healing by Granulation.

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FINAL CLASS.

- 1—(a) Enumerate the different varieties of tumors affecting the upper jaw, (b) State in general terms their treatment.
- 2—What, in your opinion, is the most effective means of arresting hemorrhage following the extraction of a tooth?
- 3—How would you proceed to examine a patient as to his fitness to have an anæsthetic administered?
- 4—(a) What is the cause of the extreme pain in Ostitis? (b) How most effectively relieved?
- 5—How would you treat a case of Chronic Fistula opening on the cheek as the result of Alveolar Abscess, the object being to prevent contraction and depression of the Cicatrix?
- 6—Treat a case of Acute Periosteal Inflammation with threatened abscess, the roots of the tooth exciting the inflammation being filled.

CHEMISTRY.

1889, Time—Two hours.

Dr. Chittenden.

PRIMARY CLASS.

- 1—Give the colors of a ray of light as shown by its prism.
- 2—What do you understand by its terminations ide, ite, ate, ous and ic?
- 3—What is meant by the following terms, viz.:—Sublimation, Analysis, Affinity, Synthesis, Crystalization and Evaporation?
- 4—Give the symbols and quantivalence of gold, iron, platinum, silver, sodium, and copper.
- 5—Give the symbols and combining weights of mercury, lead, iodine, copper, arsenic and calcium.

FINAL CLASS.

- 1—Give the formula and method of preparing Hydrogen Dioxide.
- 2—Describe a method of detecting arsenic in a solution.
- 3—Describe the process of obtaining silver from a solution.
- 4—Describe a method of obtaining gold from a solution of its chloride.
- 5—What is Galvanism, and how does it differ from Electricity?
- 6—How is humid Ferric Oxide prepared?

PHYSIOLOGY.

1889. Time—Two hours.

Dr. Rowe,

PRIMARY CLASS.

- 1—In the process of respiration how and where is Carbonic Oxide produced, and how and where is it exchanged for Oxygen?
- 2—What effect has size on the rapidity of Animal respiration and the reasons therefor?
- 3—Explain the necessary digestive processes through which a diet of Bread, Fat, Muscle and Cartilage pass to be entirely disposed of?
- 4—What is Fibrin, its supposed origin, and the reasons for such supposition?
- 5—What conditions affect the coagulation of the blood?

FINAL CLASS.

- 1—What are the functions of Cartilage, giving examples of each variety?
- 2—(a) How is animal heat produced and maintained? (b) In what tissues is the heat process most active? (c) How is the temperature of the body regulated?
- 3—(a) What is the composition of Human Lymph? (b) Whence is it derived? (c) How does it get into the Lymphatic vessels? (d) On what do changes in its composition depend?
- 4—(a) What is the function of a nerve fibre? (b) What effects are produced by irritating a centripetal nerve? (c) What functions are performed when a stimulus is applied to a centrifugal nerve? (d) On what does the effect of the stimulus of a nerve depend?

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ANATOMY.

1889. Time—Two hours.

Dr. G. C. Davis.

PRIMARY CLASS.

- 1—Describe the External Surface of the Occipital Bone.
- 2—Describe the Internal Surface of the Ramus of the Jaw.
- 3—Give origin and insertion of the Buccinator Muscle.
- 4—Give origin and insertion of the Occipito-frontalis.
- 5—Name bones articulating with Superior Maxillary.
- 6—Name muscles attached to the Palate Bones.

FINAL CLASS.

- 1—Describe the External Surface of the Superior Maxillary Bone.
- 2—Name the muscles of Mastication, and give origin and insertion of External Pterygoid and Masseter.
- 3—Name the branches of the Inferior Maxillary division of the 5th Nerve, and describe the Inferior Dental.
- 4—Describe the Antrum of Highmore.
- 5—Name the openings into the Pharynx.
- 6—Name the branches of the Spheno-Maxillary, or third portion of the Internal Maxillary Artery, and describe the Alveolar.
- 7—Describe the Otic Ganglion.

OPERATIVE DENTISTRY.

1889. Time—Two hours.

Dr. Willmott.

PRIMARY CLASS.

- 1—Why do some teeth decay, while others in the same mouth are free from Caries during life?
- 2—Define an "Original Predisposing Cause of Dental Caries." Name three.
- 3—Define an "Exciting Cause of Dental Caries."
- 4—Present the "Bacterial Theory" of the origin and development of Dental Caries.
- 5—Name and give the general composition of the "Zinc Series" of filling materials.
- 6—Name the metals essential to a Dental Amalgam. Give the one exception.
- 7—Give the method of preparing an alloy, for Dental Amalgam, containing Ag. Sn. Au. Pt. and Cu. In what proportions would you mix them?
- 8—What properties are aimed at in the preparation of Gutta Percha as a filling material.

FINAL CLASS.

- 1—Give differential diagnosis of Periostitis and Pulpitis.
- 2—What symptoms indicate death and putrescence of a portion of a pulp under a tight filling? How do you account for these symptoms? How would you give immediate relief?
- 3—Diagnose Pyorrhœa Alveolaris. Describe treatment.
- 4—What is the serious defect of Amalgam as a filling material? In the best class of alloys how may this defect be successfully combatted in preparing and inserting the filling?
- 5—Name the essential qualities of a matrix for use in filling proximate cavities. What failure is liable to occur in their use?
- 6—Discuss the relative advantages and disadvantages as materials for preserving Carious teeth, of Gold, Amalgams, Tin and Zinc Phosphate.
- 7—Distinguish between Salivary Calculus and Serumal deposits.
- 8—Name conditions upon which you would base a favorable prognosis for the operation of "Capping."

[The publishers wish to apologize to the students of our College, since they find through a mistake in mailing list, that they were omitted in first issue of the Journal.—ED.]

Obituary.

McNAIRN.—Died, in Milleroches, Ont., December 2nd, 1888, of pulmonary phthisis, Chas. A. McNairn, L.D.S., in the thirty-second year of his age. Dr. McNairn began the study of Dentistry with Dr. W. H. Wright, of Brandon, Vt., in 1877, remaining with him one year, when, being desirous of practicing his profession in Canada, he went into the office of Dr. Chittenden, of Hamilton, Ont., graduating in 1882 before the Board of the Royal College of Dental Surgeons of Ontario. Health failing him, it is said, from too close application to his work, he was obliged to go to Denver, Colorado. But the seeds of disease were too surely sown, and returning to his father's home at Milleroches, he lingered for four years. A large concourse of friends, among whom were many of his professional brethren followed his remains to the grave. He was an active member of the Eastern Ontario Dental Association.

WE publish the names of the following dentists, in addition to those given in the last number of this Journal, as having died since the organization of the profession in 1868 :—A. Bernard, J. H. Webster, Ed. Lefavre, Webb, Turcotte, Baldwin, Page, H. May, Schuyler. A. Wright, J. N. Samuels, A. D. Nutter, Locat, Pourtier, Jr., McKee, Jr., H. M. Bowker, all of Quebec Province.

Death of Mr. H. M. Bowker.

Since our last issue one of the oldest, if not the oldest practitioner in Canada, has passed away. Mr. Bowker was one of the pioneers of Canadian dentistry. In his early life he began practice in the vicinity of Kingston, moving from one place to another as was then the custom ; but eventually he settled in Montreal, and secured a distinguished practice among the *elite* of the city and the garrison. He was a conscientious as well as a skilful operator, according to the light of the olden days. He will be remembered in connection with the amalgam controversy in Montreal, when some hot words were exchanged between him and the editor of the "*Canada Journal of Dental Science*," in connection with his attempt to fasten a stigma upon the Associations of Ontario and Quebec, in the use by its members of a material which he denounced as injurious. At the time several of his older contemporaries accused him of using the amalgam he denounced, and the editor, basing his statements upon the readiness of these parties to give proof, took sides against Mr. Bowker. The contest resulted in proving Mr. Bowker's veracity. Some years ago hands were shaken over the past and friendships made, which remained until the death of our friend and confrère. Whatever may have been thought of his

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unwillingness to fall into line with the legislative efforts of 1869, the name of Mr. Bowker will be remembered as that of an honest, independent and intelligent gentleman, who, like all of us, had his faults, but none so glaring that charity might not cover.

Editorial.

After Twenty Years.

It has taken just twenty years to get efficient legislation in Quebec, which Ontario got in one year. Last month the Act to re-enact and amend the law passed, after being rejected by the Private Bills Committee as well as by the Lower House. Some day the history of this battle will be written, when it will form a suggestive contribution to the literature of dental legislation in Canada, as well as to the peculiarities of legislation in Quebec. The changes in the law are as follows: Various legal forms of procedure; a compulsory tax of \$2 on every member, which can be collected before a civil court. The matriculation examination is reduced to the examination in English, French, Latin, History, Geography, Arithmetic and Geometry prescribed by any medical college in Quebec Province for admission to study, to be passed before the examiner of the college then in office any time within thirty days of the completion of the four years' studentship. Various forms of procedure in complaints before the Board for breaches of discipline, in which the Board is constituted a judicial body, with power to try and punish; absolute prohibition is enacted to dentists without license practicing under patronage or in the office of a physician; perambulating quacks are prohibited in any street, hall or hotel, selling, or giving away medicines, and then practicing any branch of dentistry. The procedure is summary; one witness is sufficient; the fine extends from \$50 to \$200, and is to be paid to the treasurer of the association. The Quebec association is to be congratulated on possessing perhaps the most efficient Dental Bill in existence. The chief credit is due to the advocate of the Board, Mr. Arthur P. Globensky of Montreal, whose skill in framing the Act is acknowledged by a profession who know how to appreciate effective laws. Dr. Globensky, a member of the Board, proved a most expert lobbyist, and the profession owe him a debt of gratitude.

Practical Hints.

Not long ago we spent an hour in the office and laboratory of one of our Eastern Ontario dentists. Occasionally we have enjoyed an idling (?) out of town watching others in the shackles of work. The amount of practical

information one picks up when visiting his confrerés in this way is frequently invaluable. Almost every one seems to have a professional fad of his own ; some revolutionize everything they buy from the depots, and make ingenious alterations enough to fill a Patent office. Many of our members have conceived and brought forth inventions of rare value, to such an extent, that the Patent office of every country has scores of modelled testimonies to dental ingenuity. The office and laboratory which specially struck us is a model in its way. Not one notion and improvement but dozens in every direction.

Now why is it, that with all this wealth of ideas among our Canadian practitioners, it seems so hard to induce them to put them in print ? When you visit them, they welcome you and show you everything ; but they are shy of writing. And most of them can write well ; but they wait for some divine *afflatus*, when a half-hour at any time of leisure would do to give our readers many a feast of mechanism and flow of ideas.

Exchange of Practices.

Men who honestly work body and brain as busy dentists do, have good excuse to steal away for a frequent rest, even at the risk of earning a reputation as truants. There is no profession, and few trades, so injurious to health in the long run as an active operative practice. That is a settled statistical fact. If one has opportunity to contrast the tired, worn faces in a dental convention, with those of a medical assembly, a trade or commercial meeting, the force of this statement is apparent. The sun which shines on the face of the physician, driving on his round of visits, shines, if it shines at all, on the dentist's back, while he stands at his chair. The few hours of daylight are the only hours he can work to advantage. He must "make hay while the sun shines." He must utilize day-light for all it is worth. The question of his health is the vital one of his pocket. He cannot delegate his labour to an assistant ; when he stops work, revenue stops, but expenses run on. Many a poor fellow metaphorically digs his own grave by compulsory devotion to his daily work ; but the most of men could indulge in a rest if they would. At best, however, the dentist in Canada cannot afford to idle months away unless he leaves a substitute in his office ; and one of our difficulties, especially under the Ontario law, is to get a substitute. What a capital idea it would be if we could exchange practices as the clergy exchange pulpits. Imagine Dr. Molar, of Toronto, asking Dr. Incisor, of Halifax or Victoria, to let him enjoy the salt air of the Atlantic or Pacific in exchange for the fresh water of Lake Ontario. How mutually delightful it would be, if it could be made financially agree-

able, for Dr. Cuspid to have Dr. Bicuspid spend a month or two of the summer in his lively city office, while he got the quiet life of a country practice ; both carrying their *Lares and Penates* with them. There is no reason why qualified men could not frequently make arrangements of this kind without prejudice to their self-interest, and even with pecuniary profit, in their own provinces ; but it is a matter of regret that our Provincial laws are not harmonious. A Canadian licentiate ought to be able to practice anywhere he chooses in this wide Dominion ; not only should Gaspé be able to “exchange practices” with Sarnia, but Halifax with Victoria.

Arsenious Acid.

Some say they avoid it altogether. I have to confess I do not : but, like all poisons, it ought to be used as a last resort. My experience among students is that there is a loose teaching as to its use. Boys who will not have a license for several years, are given too much liberty to extract teeth, scale salivary calculus, and destroy pulps at their own discretion, and the consequence is that a great deal of mischief is done, for which tutors ought to be responsible.

When you intend to use arsenic, have your hot-water syringe filled, or hot-air syringe ready ; have a pellet of cotton on an excavator dipped in pure carbolic acid ; have your lamp beside you. Apply the rubber dam whenever possible. Remove the softened dentine at one or two quick scoops of a spoon excavator, immediately afterwards warming the carbolic acid pellet in the lamp, and putting it in the cavity, pumping in warm air. The pain instantly ceases. Every young operator ought to remember that unless the layer of dentine over the pulp is removed—and which layer is like the rind of cheese—the pulp becomes compressed when it inflames during the destructive process. The pulp does not die by strangulation of the blood-vessels at the root-canal entrance ; nor does it die by the entrance of the poison into the circulation. These facts are proved by the length of time needed to destroy a pulp, and from the fact that death is a progressive, not an immediate process, beginning, first at the point of exposure. The pulp dies by the effusion of blood in its blood-vessels, or, in other words, by thrombosis, and the pain is less severe and sometimes absent, if a thorough exposure is made before applying the arsenic. When you do not use the rubber dam, it alleviates the pain to syringe the debris with tepid water. If the pulp can be made to bleed a little, it will also prevent future pain. Apply carbolic acid to staunch the bleeding.

A careless way of applying arsenic to the pulp, especially if in an approximal cavity or a cavity under the gums, is one that is recommended in

the last work on Operative Dentistry. It is a method which has caused frequent gangrene of the gums, and even necrosis of the alveolar process, because the arsenic generally oozes out of the cavity or touches the gums when being inserted. I refer to the use of a pellet of cotton on a small excavator, saturating the cotton with carbolic acid, then touching it to the arsenious acid, using what adheres to one side of the pellet. The authorities say one-fiftieth of a grain is enough. Now, just for curiosity, weigh one-fiftieth of a grain, and you will be surprised to find what an unnecessary large amount you have been using as a rule. Another mistake, I think, is using morphine or tannic acid in combination. It is the arsenic which devitalizes, and anything combined renders it either inert or prolongs its work. My belief is that it will act quicker if pure, and the quicker it acts the sooner it can be removed; the less chance there is, too, of discoloration of the tooth, because the sooner the dead pulp is removed and the pulp-cavity and roots treated, a healthy condition is ensured.

My method of applying arsenic in all cavities is simple and safe. I double narrow strips of thin paper: cut out diamond-shaped openings as big as a pin-head; open the paper, and cut it into as many small squares as there are holes. I now place the pure arsenious acid, made to the consistency of thick cream—country, not city cream—over the little opening; having another little bit of paper without an opening as a cover, and a pellet of gum sandrac ready. I dry the cavity; apply a mouth-napkin, or the rubber dam, touch the pulp with carbolic acid, drying afterwards lightly, pick up the paper with the arsenic, apply the opening immediately over the exposure, press the arsenic gently through the opening put in the paper cover, then insert the gum sandrac. Here is a neat, clean method, which can be used as nicely in approximal as in crown cavities, without danger of messing the margins of the gums. When a cavity extends below the gums, and the latter projects above the edge of the roots, I apply the rubber dam; or, at least, take extra precautions against moisture, and I am sure that neither moisture gets in nor arsenic gets out.

One idea that should have been exploded long ago, is that no injury ensues from leaving the arsenic in the cavity sealed up for a week. It is pretended that because the tooth proper is destitute of absorbents, and because the dose is not as great as any patient could swallow in a day, and because much larger quantities are used externally to destroy malignant growths, and because it is a powerful antiseptic and prevents decomposition of animal substances, it is safe to leave it alone. I maintain that it would be safer under any other condition; but just because of the structure of the dentine not possessing blood-vessels, and not having the power of soft tissue to absorb and eliminate poison readily and rapidly, the pulp imprisoned in unyielding walls, cannot bear what, for instance the stomach, could.

The result, not unfrequently, is pericementitis and pathological changes in the tubuli, which produce infiltration of the coloring matters of blood, and more discoloration than would occur if the arsenic was removed in twenty-four hours. It is hard to discover any scientific operator prepared to defend to-day, the uselessness of removing the pulp after devitalization. I feel quite sure that it will be as difficult some day, with fuller knowledge than we now possess, to defend the use of arsenic, and even the destruction of many pulps we feel justified in now thus treating ; but in the meantime, it is important to use our dangerous remedies with judgment and precaution, and leave no dead excuse behind, in the shape of putrid matter, for future trouble.

I began this article by saying that arsenic ought to be used as a last resort. In cases where a tooth has been fractured, leaving the pulp exposed, and it is necessary to devitalize : in cases where a crown has to be inserted, and in fact in all cases where the operation is possible, the most speedy and painless way, is to administer nitrous-oxide gas, and remove it surgically, by quickly enlarging the pulp-cavity with a sharp bur on the engine, and using the barbed broach. I have repeatedly done this ever since nitrous-oxide was first introduced, and I know many others use it. Some writers constantly deplore the necessity for the destruction of the pulp, while others have gone to the other extreme, and declare that its absence is better than its company ; but until the public are educated to the point of believing that they can avoid its exposure by timely examination, death will enter its little chamber as well as parts that are less hidden.

“GIVE THE DEVIL HIS DUE.”—Typographical errors are always made by “the printer’s devil.” Not the traditional one ; but a genuine imp, who hates letter-press and loves disorder. There is a fiendish ingenuity in the way which verbs are made to jostle adjectives ; commas to pop into the best places to make false syntax and confusion, and drop out of places where they are especially needed, so that a writer would be ready to take his oath that he never sent the printer the copy. The cloven foot of our printer’s assistant demon has kicked up a such row in our first issue, that we must beg our readers to paste the enclosed “eratta” opposite page 42. Were it not that the very Bible has seldom, if ever, escaped the Beelzebub of the printer, authors would despair. What more exasperating, for instance, than the following slips in Dr. Mills’ notes on the case of Reflex Nausea :—Page 9, paragraph 1st, “contraction” for “condition,” and the “*tetanus* vomiting centre” instead of the “central vomiting centre.” As the doctor remarked, “it is enough to make Physiology epileptic.”

Along with this number of the Journal we send “Errata” to our first number, which you will kindly paste opposite page 42.

Correspondence.

QUERIES.—I. Does a graduate in Arts or Medicine get his term of pupillage shortened on account of such graduation?

II. Why do graduates of our Toronto School of Dentistry go to the other side and take a finishing (?) course in some of their colleges?

III. Does length of service confer upon graduates of the R. C. of D. S. the title of "Doctor"? or, is public opinion or appreciation in advance of dental legislation?

QUIZ.

ANSWERS.—No. 1. Yes. A graduate in Arts or Medicine of any Canadian University is exempted by the Royal College of Dental Surgeons of Ontario for one year of his pupillage, making the term for him two years. See announcement 1888-9, pp. 19.

No. 2. Mainly to obtain a diploma conferring the title of "Doctor." The degree of D.D.S. can now be obtained from the University of Toronto.

No. 3. No; certainly not, and a nice sense of the proprieties should prevent those not legally entitled to the title of "Dr." from either assuming it or encouraging others in applying it to them.

J. B. W.

The editor has to thank a great many correspondents for kind encouragement; and accepts the general advice not to push the idea of a Dominion Dental Society until next winter, or, perhaps spring. The proposition seems to meet with great acceptance. We must urge our friends to jot down practical hints, and send them in any shape, rather than not send them.

Notices.

TRANSACTIONS OF THE BRITISH DENTAL ASSOCIATION.—8th annual meeting held in Dublin, August, 1888. A complete volume of 151 pages, containing the full proceedings as published in the Journal of the Association.

L'ENSEIGNEMENT ET L'ORGANISATION de L'Art Dentaire, aux Etats Unis. Par La Dr. Kuhn, Paris. We have to thank the author for a copy of this bulky and valuable report addressed to the Minister of Public Instruction. Dr. Kuhn attended the Medical Congress at Washington, and studied the organization of the profession in the United States, with a view to the presentation of this report. The author might have found some profit as well as amusement, had he paid a visit to old Quebec, and studied how our Provincial Legislature can make a law one hour, and unmake it the next. He would have heard some extraordinary arguments that would have made his hair stand on end.

REVIEWS

Reviews.

A TEXT-BOOK OF OPERATIVE DENTISTRY.—By THOS. FILLEBROWN, M.D., D.M.D., Professor of Operative Dentistry in the Dental School of Harvard University. Written by invitation of the National Association of Dental Faculties. 330 illustrations, \$2.50. Philadelphia, P. Blakiston, Son & Co., C. Ashford, Dorchester st., Montreal.

Any one familiar with the author would expect from his pen a production of value on the subject of operative dentistry, but we candidly confess to a sense of disappointment, in spite of the fact that the work is heralded as the result of an invitation by the National Association of Dental Faculties. The book will be useful to students who expect merely an outline of operating. For a work that is evidently intended to be a college text-book, the treatment of operative dentistry proper is altogether inadequate, and in the discussion of such subjects as "opening cavities," "formation of cavities," the uses of gold, etc., the matter is much too elementary. Evidently the author has labored under a dread of amplification. As an epitome, concise and to the point, the book is a success, but it must remain chiefly of use to beginners. In fact, the author frankly avows as much in his preface, but we feel that he merits a good-natured scolding for hiding so much of his light under a bushel. A new edition will no doubt be demanded; when we hope that any attempt at making our muddled nomenclature worse will be avoided, and that the modern trick of advertising manufacturers by filling a text-book with pages of their catalogue illustrations will be removed. A large part of the book is made up from articles in the "Cosmos" and the "American System of Dentistry." The author is able to give us something more original, that will not only be useful, as this work is to beginners, but to those of us who are always learners, and who welcome every worthy addition to the literature of the profession.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery, and Mechanism, by Chapin A. Harris, 12th edition: revised and edited by F. I. S. Gorgas, A.M., M.D., D.D.S., with one full-page plate and 1028 illustrations; Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St., Philadelphia, 1889. J. M. Renouf, St. Catharine St., Montreal. Price, cloth \$7.00, Leather \$8.00. It is a very happy thought to keep this grand monument to a grand man in frequent repair. There have been many books on dentistry written since our Chapin Harris died, but not one of them will live longer in the hearts of the profession, old and young, than this standard for students and stand-by for practitioners. Harris could hardly have

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asked a better posthumous tribute than the revision, for the twelfth time since 1840, of his early love in dental literature; and it would have been no bad idea, had many more of our modern authors studied this work as a model of composition, as well as a compendium of practice, before issuing their own productions. Not only has this work "reached every civilized country, but has been translated into several languages." Hardly a chapter but has been revised, and about 226 new pages, and 382 new illustrations have been added. The late Prof. P. H. Austen supervised the revision of the tenth edition, and Prof. Gorgas, of Baltimore, gave a great impetus to the fresh popularity of the work when he revised the eleventh. By his labors on this last edition, he has not only perpetuated the great reputation of Harris, but merits for himself another niche for another statue. The dental student may learn all he may ever need of dental anatomy and physiology, which occupies 161 pages with about 80 illustrations. In dental pathology and therapeutics the work covers dentition, diseases of the mucous membrane, diseases of the gum, tumors of the mouth and jaws, calcic deposits of the teeth, the fluids of the mouth, diseases of the pulp, alveolar processes, etc. In dental surgery are comprised irregularities, treatment of caries, extraction, anæsthetics, etc. The natural prejudice many of us entertain against the profuse display of manufacturers' catalogues in text books, will be provoked here again, but the text is so well prepared, and there is such a faithful attempt made to enlighten the student, that one feels like overlooking it. Dental mechanics cover the whole range of mechanism, introducing crown and bridge work, almost all taken from published sources. This department is a complete treatise in itself. It is impossible to say too much for the editor as well as publishers of this useful work. Every dentist should add it to his library. Every student should make it his own.

Miscellaneous.

A PRACTITIONERS' COURSE, similar to that inaugurated in England, opens on the 1st of this month and terminates on the 27th, in connection with the Chicago College of Dental Surgery. Dr. Truman W. Brophy, Dean, 96 State St., Chicago, will send any information desired. The cost of the course is only \$25. It will be made practically useful to busy practitioners.

About ten years ago, a coloured woman in Montreal, gave birth to a child, which came into the world, with the two central lower incisors. About two weeks afterwards the mother tied a string to the premature arrivals and extracted them. Successively as the incisors were developed she worked at them, until she actually extracted them from the alveoli!

MISCELLANEOUS

Mentioning this a medical friend, he told me of a squaw in Oneida Co. Ontario, who thirty years ago, finding the mid-wife could not extract the head of a child after the birth of the body, thought she'd make sure of the latter, and severed it from the head with a knife. Twelve hours afterwards a physician removed the head.

IN times gone by, barbers performed minor operations in surgery, and, in particular, when much bleeding was in vogue, it was to barbers that patients applied to be bled. The barber's pole represents the staff held by persons during the process of venesection; and the two spiral ribbons painted round it represents the two bandages, one for twisting round the arm previous to blood-letting, and the other for binding up the arm afterwards. The gilt knob at the pole represents a brass basin which in former times was actually suspended on it. Lord Thurlow, in a speech in the House of Lords, July 17, 1797, said that "by a statute, still in force, barbers and surgeons are each to use a pole as a sign. The barbers are to have their blue and white, striped, with no other appendage; but the surgeons', which was the same in other respects, was likewise to have a galley-pot, and a red rag, to denote the particular nature of their vocation." The last barber-surgeon in London was a man named Middleditch, of Great Suffolk Street, in the Borough. He died there in 1821. Mr. Timbs in his "Autobiography" says: "I have a vivid recollection of his dentistry." The "barber-surgeons" still retain their "Hall" in Monkwell Street, Cripplegate. Consult p. 46 of "Words, Facts and Phrases" by Eliezer Edwards (Lippincott); p. 266 of William Pulleyn's well-known "Portfolio of Origins and Inventions," (London, William Tegg,) p. 65; Dr. E. Cobham Brewer's "Dictionary of Phrase and Fable," (London, Cassell & Co.); and p. 125 of "Things not Generally Known" by John Timbs, F. S. A. (London, David Bogue). Mr. Timbs writes at the end of his article: "Barbers have in our time let blood and drawn teeth. The last we remember of this class (and with praise), was one Middleditch, of Great Suffolk Street, Southwark, in whose window were displayed heaps of drawn teeth." The mention of this operator subsequently in the "Autobiography" of Mr. Timbs is calculated to make us all rejoice that barbers are no longer permitted to try their hands on surgery or dentistry.

THE application for a private bill without examination by Mr. Alex. Graham, L. D. S. of Ontario, upon the ground that he was actually practicing in Quebec when the Bill granting the privilege passed in March, 1883, was granted by the Local Legislature. A similar Bill on behalf of Mr. W. S. Cotton, upon the ground that he obtained a diploma in Boston, was rejected, and the applicant ordered to appear before the Board for examination.

Go Thou and Do Likewise.

STRATFORD, March 8th, 1889.

Dominion Dental Journal Pub. Co.

DEAR SIRS,—It is with much pleasure that I again hail this Dental Journal of dental science ; also glad to find my friend W. G. Beers at the head of it. May it go on and prosper. It is the very thing every dentist wants on his table, therefore I cheerfully send my remittance, \$1. Yours truly,

J. G. YEOMAN.

PORTAGE LA PRAIRIE, MAN., March, 1889.

Dominion Dental Journal Pub. Co.

SIRS,—Enclosed please find \$1, for which please send me the D.D. JOURNAL for one year. I received the January copy, and like it very much. I hope the venture will prove a success. There should be a sufficient number of dentists in Canada alone to support a journal of this kind. Yours, etc.,

R. H. ROBERTSON.

NEWMARKET, Feb. 14th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—I have just received the DOMINION DENTAL JOURNAL. Am much pleased with it. Enclosed please find three dollars. Send the JOURNAL for one year to me ; also one to Dr. Stewart, Newmarket ; also one to Dr. Bentley, Newmarket. They have both looked over it and are quite pleased with the present number. Try and send the first number to them.

Yours respectfully, A. J. HOLLINGSHEAD.

OTTAWA, Feb. 18th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—I was pleased, but somewhat surprised, on receiving the first number of the D. D. JOURNAL, having had no intimation of its coming. I hail (with fervent hope of its success) the second appearance of a Canadian Dental Journal, a medium through which the individual may become more intimately connected with the profession generally. Enclosed please find my subscription, one dollar. Yours, etc.,

CHAS. A. MARTIN.

ST. CATHARINES, Feb. 25th, 1889.

Dominion Dental Journal Pub. Co.

DEAR SIR,—Enclosed please find one dollar for DOMINION DENTAL JOURNAL for 1889. I trust that the profession of the Dominion will support your undertaking so as to make it a success, and that in the near future you will be able to publish it monthly. Yours truly,

CARL E. KLOTZ.

SMITH'S FALLS, March 6th, 1889.

Dominion Dental Journal Pub. Co.

GENTLEMEN,—Please find enclosed one dollar for a year's subscription to the JOURNAL. This is what I have been looking for quite a number of years, and wish success to the promoters. Sincerely yours,

O. H. WEAGANT.



THE LATE DR. C. S. CHITTENDEN.

THE DOMINION ILLUSTRATED, PRINT.

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VOL. I.

TORONTO, JULY, 1889.

No. 3

Original Communications.

Dr. C. S. Chittenden—In Memoriam.

The announcement of the death of C. S. Chittenden, D.D.S., M.D.S., at the city of Hamilton on the 8th of May, 1889, was received by the dentists of Ontario, and by not a few residents elsewhere, with profound regret, and an unusual sense of personal bereavement.

It is safe to say that no man in our profession had among its members so many personal friends. For more than twenty years—ever since the first movement for associated effort in the advancement of dentistry in 1867—he has been prominently before them, and in his public, as in his more private relations to his professional brethren, his ability, courtesy, kindness of heart and general good-fellowship, endeared him to all.

Dr. Chittenden was born in Burlington, Vermont, in 1825. He belonged to one of the oldest families in New England, the descendants of one of the earliest Puritan settlers. His early educational advantages were not great, but of them he made the best use, and acquired habits of study and careful reading which were continued during his whole life. He studied dentistry with Dr. Nelson Chittenden, of Nunda, N.Y., afterwards graduating Doctor of Dental Surgery from the New York College of Dentistry in 1876. In 1849 he settled in the city of Hamilton, where during forty years of continuous practice, he gathered a clientage strongly attached to him, not only on account of his skill as a dentist but by a close personal friendship.

Always studious and progressive he held first rank as a dentist, and when the profession was incorporated in 1868 he was named in the Act one of the members of the Provisional Board of Directors and Examiners. His high place in the esteem and confidence of his fellow-practitioners is seen in the fact that, excepting a period of two years voluntary retirement, he has been continuously elected a member of the Board by their unsought suffrages. At the time of his death, and for thirteen years previously, he filled the honourable office of President of the Board. Among other valuable services rendered to the profession, Dr. Chittenden was, for several years, joint editor of the *Canada Journal of Dental Science*, and for a year and a half its publisher—a service rendered as a “labour of love.”

Endowed by nature with a fine musical talent, the Doctor found his principal recreation in the study and practice of music. In his adopted city he did very much to cultivate a taste for good music, and, as stated by a leading local journal, “was looked up to as the Nestor of the musical progress which has given the city of Hamilton an enviable reputation in the Dominion.”

Our departed friend was a “good man,” “fearing God and working righteousness.” In his earlier years he was a devout member of the Anglican Church. In later years his honest soul rebelled against the tendency to ritualism and sacramentarianism. Warmly attached to the Episcopalian form of worship and Church government, he associated himself with the Reformed Episcopal Church, where he rendered valuable service. Besides other important official positions he was leader of the choir, and superintendent of the Sunday-school. In few family circles will the head of the household be so greatly missed. To his children he was both father and companion. His widow and children, two daughters and two sons, have, in their bereavement, the sincere sympathy of an unusually wide circle of friends.

The funeral on the 12th May was attended by a very large concourse of citizens, conspicuous among whom were all the dentists of the city, and a number from Toronto and other points. The ceremonies were under the direction of the Masonic Lodge, of which he was a member. The Rev. Thos. Campbell, of the Reformed Episcopal Church, Toronto, and Rev. Dr. Lyle, of the Central Presbyterian Church, conducted the services at the house and at the church.

The remains were laid away in the beautiful Burlington Cemetery to await the “resurrection of the just.”

Dentistry in Ontario has room for a large number of men of the character and attainments of our friend, the late Dr. C. S. Chittenden.

J. B. W.

Polishing Disks.

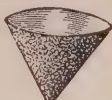
By GEO. H. WEAGANT, L.D.S., Cornwall, Ont.

Every dentist recognizes, as a very necessary and important part of his work, the operation of finishing and polishing fillings, both of gold and amalgam ; and, in order to quickly and effectually accomplish this work, innumerable devices, most of which are to be used with the dental engine, have been offered by manufacturers.

Perhaps the most popular of these, at the present time, are the little paper disks, cut in different sizes, and carrying polishing powder of different kinds and grades, ranging from the coarse corundum, used in lieu of a file, to the finest flour of emery, pumice stone, and rouge, which impart a brilliant polish to the filling. Their flexibility, which allows them to easily follow the contour of the filling, has no doubt been the means of rendering them a success, while their cheapness gives every one an opportunity to keep on hand an unlimited supply. Although these little flat disks are so very handy in most cases, we are often unable to use them at some particular point where their services would be most acceptable, but where their shape will not permit them to go. We reluctantly lay them aside, and proceed to finish our filling with other instruments—quite as effectual may be as to the result, but requiring far more time, patience and care in their use.

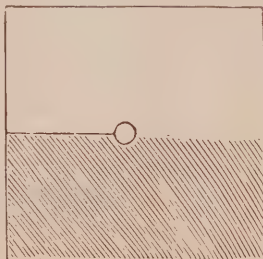
Now, why cannot sand-paper, or paper carrying any other grinding or polishing powder, be formed into suitable shapes to reach those parts where the ordinary disks will not go, and at the same time retain their flexibility? Many attempts have been made to overcome the difficulty of which I speak, but with only partial success. We have “depressed disks,” which come to us in the shape of very shallow saucers or plaques. They are useful for some cases, and handy, as far as they go ; but they do not go far enough. Then we have various appliances to be used with the disk, which bend or curve it in such a way that one edge is diverted from the proper path of its revolution, and made to reach out after the unattainable. I do not doubt that many dentists have found them to answer the purpose admirably for which they are intended, and that they have been able to overcome the unconscionable tendency of the disk to rumple itself into a hopeless state of tanglement, just at the moment when the desired portion of the operation was about to be achieved—or to refrain from using language shocking to the ear of a sensitive patient, when the rubber-dam is suddenly and violently torn from its fastenings, and sent whirling around a

rapidly revolving hand-piece, like a Dakota cyclone through a pile of shingles, carrying terror and devastation in its wake. Something is wanted to take the place of the little polishing-points of corundum, wood, rubber, celluloid, etc., etc., which are invaluable in their place, but do not possess the flexibility and elasticity of the paper disk. I would suggest little paper cones, of different sizes and angles. Having made some myself, and used them for years, I know them to be good. No one has put them on the market, so they cannot be bought; but any dentist ought to be able to make



them for himself and for the benefit of those who might wish to provide themselves with these very useful little accessories, I will try to explain how they may be made. The very strongest paper should be used, but it must also be thin, so that when doubled it will be no thicker than that used for disks. Fine Irish linen writing paper for foreign correspondence I find makes the best cones. It is quite thin and not easily torn. Proceed as follows: Cut

half inches square, and punch make a small centre; then cut scissors from one side one-half of one side of with the incision just hold of the dry side bend it under and that the two sides will



in pieces one and one-with a harness-maker's hole exactly in the through the paper with to the centre, and gum the paper on a line made. Then, taking next to the incision, completely around, so be parallel with each

other, and the outside of the dry half be securely glued to the inside of the gummed half, making a perfect little cone with a round hole at the apex. With very little practice one becomes quite expert in making them, and it is surprising how many one can turn out in an hour.

When a sufficient number have been thus prepared, they are ready to receive a coat of shellac upon one side and polishing powder upon the other. When dry they may be cut down to convenient sizes with a pair of scissors. In using them it will be necessary to devise some way of holding them securely in the engine. I have constructed a carrier from an ordinary disk mandrel by removing the flat end, and soldering a hollow brass cone in its place: a brass cone is also soldered to the screw. I dare say that some other arrangement might be made to answer as well; for instance, little wooden shanks glued into a polisher. I think a selection found in the box of wood-



each cone, and used in a port for this purpose might be polishing points.

The Deciduous Teeth.

By F. A. STEVENSON, D.M.D., L.D.S., Montreal.

The deciduous teeth in man are twenty in number: four incisors, two cuspids, and four molars in each jaw. They do not appear till a few months after birth normally, but occasionally a child is born having one or two teeth above the gum. Marcus Curius is said to have been born with a full set in each jaw.*

The time at which the temporary teeth appear is subject to some variation, but the following table will be found to be approximately correct: - Centrals, sixth month; laterals, ninth month; first molars, twelfth month; cuspids, eighteenth month; second molars, twenty-second month.

The inferior centrals are the first to appear, and are followed a month or six weeks later by the superior centrals and laterals; the inferior laterals appear about a month later (*i.e.*, the ninth month). Then there is a rest of about four months, after which the first molars appear, followed by another rest of six months, and then the cuspids are cut. The cuspids are peculiar, in that they come *between* teeth already in place, and the eruption is slow and very painful. About two months later the second molars appear, so that all the deciduous teeth are usually erupted before the end of the second year.

There has been much discussion as to the kind of force which pushes the teeth through the gum. One theory is, that as the teeth grow up more dentine is added to the root, but this does not seem to be sustained by observation, *e.g.*, teeth with very stunted roots are often erupted, while some fully developed teeth may remain in the jaw for years and then begin to erupt: this is especially true of third molars.

The calcification of the roots of the deciduous teeth is not completed until some months after eruption; the laterals being the first (about the twelfth month after birth), and the second molars the last (about twenty-two months after birth). The roots are completed a little more than one year before absorption begins. The following is the order given by Tomes: Centrals, about the fourth year; fifth year in laterals; ninth year in cuspids; seventh year in first molars, and eighth year in second molars. Absorption goes on till the roots have entirely disappeared and the crown becomes loose and falls off. Absorption of the deciduous teeth is thought to be entirely independent of pressure from the developing permanent teeth. That the absorption of the root depends on the vitality of the pulp is shown by the fact that when the pulp dies absorption is arrested.

The deciduous teeth resemble the permanent in shape, but are smaller and more rounded. The molars have a marked projection or ridge of enamel near the gum, which enables them to be easily distinguished from the permanent teeth. The roots resemble those of the permanent molars, but are smaller and more spread apart, to give room for the crowns of the developing bicuspid.

Deciduous teeth are of softer structure than the permanent, and thus caries is not uncommon, especially in weak and sickly children. Treatment should be both general and local. General treatment consists in attention to hygiene, nourishing food, plenty of fresh air, exercise and sleep will help to build up the system, and so the teeth will become better able to resist the attack of caries.

Local treatment is, in nearly all cases, to remove the caries and fill. The operations should be performed quickly and with as little pain as possible.

The materials used are oxyphosphate of zinc, gutta percha, amalgam and tin. Gold is not used, as it takes too long to introduce, and too much force is required to condense it. Oxychloride of zinc is not used, on account of its irritating properties, the pulp being very liable to die under it.

Oxyphosphate of zinc is good for all the cavities in deciduous teeth, especially shallow proximal cavities in the front teeth. It also gives a good grinding surface in the molars. It must be watched, however, as it is apt to dissolve away slowly, especially near the cervical border of the tooth.

Gutta percha is, perhaps, the most useful material for preserving deciduous teeth, especially if the harder preparations are used. It is a non-conductor of heat, and is not irritating to the pulp. It makes a fairly desirable grinding surface in molars, and does not dissolve away in proximal cavities. Gutta percha will cohere to the walls better if the cavity is first coated with copal-ether varnish.

Amalgam is very good for cavities in the crowns of molars, as it can be introduced quickly and gives a good grinding surface. In deep cavities, however, where the pulp is living, oxyphosphate should first be used, amalgam being a good conductor of heat and cold, while oxyphosphate is not. Gutta percha would be preferable to oxyphosphate, as it is less irritating, were it not that it shrinks and expands, so that in time the amalgam covering becomes loose.

Tin is used by some as a filling in the crowns of deciduous molars. It does not conduct heat and cold so readily as amalgam, and it is claimed that owing to its plasticity it will make a tight filling even if moisture is present, but this is doubtful. The force and length of time required to condense it more than offset any of the advantages claimed for tin.

Exposed pulp. When the history goes to show that the exposure is recent, and on examination the pulp seems to be in a healthy condition, it may often be successfully capped in deciduous teeth. In any case it is well to give it the benefit of the doubt, in order that, if successful, the absorption of the root may not be interfered with. In order to cap the pulp, excavate round the walls of the cavity and remove all loose debris near the pulp, leaving as much as possible covered by decalcified dentine. Mix some oxide of zinc with oil of clove and cover the exposure well; then flow in some creamy oxyphosphate, using the greatest care to avoid anything like pressure. After this has hardened, cover with cement of usual consistence. If the operation has been successful the tooth will not give pain; if it aches, remove the filling and insert a pledget of cotton, moistened with oil of clove and creasote, equal parts, cover this with a piece of cotton soaked in sandarac varnish, and let the tooth rest for a few days and then try again.

If the pulp is suppurating, or nearly dead, it may be destroyed by applying carbolic acid (90%). Arsenious acid should not be used, as the apical foramina are apt to be enlarged, undergoing either calcification or absorption, and the escharotic effect of the arsenic may not be confined to the pulp. When dead the pulp should be carefully removed, the canals cleansed and disinfected, and filled with gutta percha or oxyphosphate cement.

In cases where the crown has decayed away and only the root remains in the jaw, it may be left, if causing no inflammation, until it is time for the permanent teeth to appear. It must be watched carefully, however, and if there is any indication of the permanent tooth erupting out of line, owing to the presence of the deciduous root it should be extracted at once.

Extraction of the deciduous teeth is in most cases easy, the roots being smaller than in the permanent teeth. Great care must be taken not to injure the permanent teeth, especially in extracting the molars, the roots of which embrace the crowns of the bicuspid. Extraction should not be resorted to unless the tooth is loose and painful, or is wedging one of the permanent teeth out of proper position, because premature extraction makes the eruption of the permanent teeth more difficult, on account of the cicatricial tissue which is formed, making the gum hard, and tending to contract the space between the remaining teeth.

Irregularities of the deciduous teeth are very rarely met with, and are not serious enough to require special treatment.

Difficult eruption of the deciduous teeth is apt to be accompanied by disorders of the alimentary canal, and, in some cases, by convulsions or death. Early eruption is more frequently attended with constitutional

disturbance than late. Lancing the gums will relieve the tension and pain, but must not be done till the ridge is hard and white, showing that the teeth are near the surface, or a cicatrix will form, which will be harder for the tooth to penetrate than the gum uncut. The writer in the "American System of Dentistry" claims the opposite to be the case, and recommends frequent lancing, on the ground that cicatricial tissue being less highly organized than the gum it ought to be more easily absorbed. The incision for incisors and cuspids is in the line of the arch; the molars should have a crucial incision, running from one cusp to another, and intersecting as near the middle of the crown as possible. An oozing hæmorrhage has sometimes occurred after lancing, and may be due to sucking the gums. This can be prevented by keeping the mouth open for a short time (two minutes) by means of a bit made of linen or something soft. If this is not successful, a styptic such as alum or tannin may be applied. In constitutional disturbance as diarrhœa, constipation, fever, etc., it is better to call in a specialist in children's diseases.

The deciduous teeth are finally shed just before the eruption of the permanent, usually in the following order: Incisors about the seventh year; cuspids between the ten and twelfth year; first molars about the ninth and second molars about the tenth year.

Dental Fees in Canada.

BY "ONTARIO."

There is nothing I would despise more than money—if I could afford it. It is, indeed, "filthy lucre" when applied to Canadian and American bank-bills. Money ought not to be the chief aim of the honest dentist; yet, I would not affect that high-toned hypocrisy which pretends to sneer at the almighty dollar. It is a many-sided question to the dentist as well as to the doctor.

I do not know any character more despicable than the money-grabber whose soul is in his pocket, and who values his victims in proportion to the fees they can pay. But to no man so much as the honest dentist, is the question of remuneration more important. The quack or rascal can trim his fees to suit his dupe. He can plug or plaster with a conscience as mobile as wax; but at every step the honest dentist never thinks of dishonesty. To him the work at his finger ends is superior to the pecuniary result. Circumstances may force him to refuse his attention; but once it is given, the idea of profit becomes secondary. It is a fact to be proud of

that to-day, when the cost of living and of practice have very largely increased, while the fees have not, the quality of a large proportion of dentistry in Canada is greatly superior to what it was when we were better paid. The change is not because of the vices of the quacks, but because of the virtues of the best men. A quack will be a quack whether he shovels coals or fills teeth. But he teaches the public to believe that those who ask high fees are extortionate, and that, after all, there is not much difference between cobbling shoes and plugging teeth ; that one dentist is as good as another, and that if there is any difference it lies in his favour. What are we doing to counteract this ? Unconsciously the quacks form a fraternal brotherhood. I know very inferior men who demand very superior fees ; and it is curious that some otherwise very wise people, accept this demand as sufficient proof of ability ! But let me allude to some reasons why our fees, as a rule, in Canada should be increased. And I would premise by saying, that there can be no better check upon the admission of men likely to reduce fees to the quack standard, than a stiff matriculation examination, which will exclude men of inferior mental calibre.

The public demand from us a severe amount of personal attention and concentration. The clergy work their brains and, with all respect to them, have a comfortable time of it. The physician drives about in the open air enough to compensate him for any unhealthy air he has to breathe, and enjoys distinction and remuneration for very little outlay we may envy. The lawyer manages to thrive out of the meanest miseries of mankind. The dentist has a heavy outlay from day to day ; he has close confinement in unhealthy and monotonous positions ; a strain upon eye-sight ; a drain upon his nervous system, which soon leaves its trace. There are no recompenses or rewards for him away from his operating chair. The profession has a circumscribed sphere. Every other has public and corporate honours and appointments of money value open to them, The physician draws his fees from a dozen sources outside of his patients, as examiner in insurance companies, as expert, etc. To the dentist there is absolutely nothing, unless it is in circumstances where he has the privilege of giving his skill and experience gratuitously for some public good. He has only the few hours of daylight to operate ; as a rule, half his time is positively wasted in unpaid consultations. He gets no more for a difficult case in extraction than for a simple one ; for artificial sets difficult to adapt. We should make distinctions, and charge according to the special difficulty of a case. I have even known men holding the highest positions, to charge rich patients no more for repeated treatment previous to filling, than for a simple case ; and either to refund the fee charged for filling a tooth, which had afterwards to be extracted, or to refuse payment for the extraction !

For many years I have made a rule of giving patients the preference of operations by the hour, and I find it an admirable plan, especially in the case of children or nervous people who give extra trouble. I quite understand that in a world made up of all sorts of people, there must be great elasticity in our scale of fees; but for real honest skill and experience there are not the rewards in Canada there should be, and it is no surprise to find some of our best men leaving us or our ranks. I believe Canadian dentistry is equal to any in the world. There is nothing done in any department in any country that cannot be as well done in our Dominion; but the question of remuneration is a mighty casuist, and men are rare who do their best when poorly paid. Materials cost us more in Canada than over the border. We have many difficulties to contend with. But the chief among sinners is the dentist who cheapens his services, not because he knows them to be inferior, but because he finds it a profitable catch-penny. The profession in Ontario now occupies a position second to none, thanks to the action of the University of Toronto. I must conclude by saying that the journal which preceded the *DOMINION DENTAL JOURNAL* did an enduring service to the profession, in the high stand it always took respecting the dignity of the profession in Canada; and we are profiting to-day, every man of us, and our students, by the noble work of those who were the pioneers. That history cannot be revoked; the future is in our hands to-day. Let us not pull it down again by reviving jealousies and discord, which ought to have no place, where men are sincere in their desire to promote dental "science, art and education."

"Head Rests."

BY L. D. S.

Had Shakespere lived in our time, and been obliged to sit for an hour or more in one of our modern dental chairs, he would probably have felt disposed to parody his own line in *King Henry IV*:

"Uneasy lies the head that wears a crown."

I remember when I was a student the big broad rest, that was not only a head rest for the patient, but an arm rest for the operator. I remember the one used by my preceptor, and which his successor has had the good sense and independence to keep and use ever since. It was a grand-father sort of an arrangement, but it was, and still is, a grand old chair, and like Chevalier's lathe—long since abandoned—was one of the most practical ever in use: with no nonsensical gim-cracks and valueless embellishments,

but a simple, sensible and comfortable chair, with a head rest that accommodated every head and fashion of hair. I have frequently asked manufacturers why they made this part of the chair so small and uncomfortable, and have never yet got a good reason. Every operator knows the continual nuisance on the part of both patient and dentist to get the head into place. Half the time the patient rests his head on one outside edge. At best, in the best and expensive chairs, it is the one specially uncomfortable part of the chair, and if you attempt, as I did, to have a wide and large rest adapted, you will find that the ball and socket is too weak to stand the strain, and your improvement, like so many other things in our time we attempt to improve, needs another improvement, until you can improve the entire chair out of existence. Will some one whose anathema is authoritative, hurl forth a tirade against the small head rest of the fashionable chair?

Another very serious objection, which persistently tires my patients, is the hollow caused between the back of the skull and the shoulders, by the distance of the head rest from the upper part of the back rest. I am repeatedly obliged to use a small roller-cushion to fit into this space. We have an arrangement of the back by which we may accommodate the bustle, but none by which we can make the neck comfortable. A great deal of unnecessary ingenuity has been spent in parts of the chair, not half as important as the head rest. Perfect that, and even the weary dentist after his day's work is over, or when he can indulge in a *siesta* in office hours, would prefer the luxurious repose on his own chair to a bed or a sofa, and never once think of a modern Shakespeare exclaiming: "Uneasy lies the head on dentist's chair."

Certain Peculiarities of the Maxillaries.

By J. A. BAZIN, L.D.S., Montreal.

Dr. F. H. Hooper, of Boston, has recently published a pamphlet on the "Mechanical Effect of Adenoid Vegetations in Children," in which he sets forth the theory that these highly vascular growths in the nasopharyngeal cavities, by blocking up these air passages, prevent their use in breathing, and force those thus afflicted to breathe through the mouth. He goes on to illustrate the general effect of these growths, such as contracted chests, structural changes in the ears, ill-developed bones of the face, and malformation of the upper jaw. Oftentimes, in his

experience, parents have attributed all these disorders to catarrh and cold in the head, with the hope that the child would grow out of it; and sometimes, in the case of robust constitutions, this does occur through atrophy. It would appear that this disease is of recent discovery, and much of the evil has been charged to enlarged tonsils, and their removal is the sure cure. The Doctor gives data that go to prove that this trouble is very extensive in New England, and possibly in Canada. For since June, 1885, he has operated upon no fewer than 240 children, varying in age from eight months to sixteen years.

The paper is very full of information concerning the results of his experience, but is too long for me more than to quote a few selections pertinent to the dentist. Referring to infancy, he asks: "What does it mean for an infant to have its nasal breathing impeded? It means starving for air, and the younger the child the more difficult it is to get air into the lungs through the mouth, as the infant's mouth is completely filled by the tongue and soft parts. . . . But if the upper air tract is in normal condition, the infant breathes, sleeps, and nurses noiselessly and without effort."

Referring to the mechanical effects of these growths, he says: "On the outside of the body they are chiefly noticeable in the shape of the soft parts and bones of the face and the walls of the chest. On the inside of the body we can see narrow nasal chambers, the deformed upper jaw, the high palatine and narrow dental arch, and irregularity of the teeth." The *modus operandi* he explains in this way: "The naso-pharyngeal cavity being blocked up, mouth breathing results, the weight of the hanging lower jaw causes the face to become elongated, lines and furrows are formed at the angles of the nose and mouth and corners of the eyes, cheeks sunken, nose pinched, the frontal, sphenoidal and ethmoidal sinuses and the antrum, being normally in communication with the air, cease to develop when the circulation of the air is interfered with." The Doctor thinks there is a definite relation between these growths and the V-shaped palatine arch. He declares it is always present in typical cases of this complaint, and expresses his belief that teeth have been extracted and ingenious mechanical devices worn to correct deformities, that have failed to secure the result desired because of the atmospheric effects produced by this complaint.

Referring to the speaking and singing voice, the Doctor says: "The voice, instead of being clear, is thick, muffled, stuffy, which is readily explained by the sound waves impinging on the soft, irregular growths, instead of upon the smooth walls of the resonator, and is said to be 'dead,' the nasal consonants m, n, ng becoming b, d and g hard."



Fig. 1.



Fig. 2.



Fig. 3.



Fig. 4.

It is a satisfaction to know that "these growths can be removed, and when done will not recur." The evil is that they lead to results which may be very serious.

Leaving Dr. Hooper's paper, I wish to present a case which seems to emphasize in a marked degree just what has been referred to. It is a case of malformation of both the upper and lower jaw, with irregularity and protrusion of the upper front teeth, a model of which I here present. (See cuts No. 6 and 7.) It is of a twin child (brought to me in the spring of 1887), about twelve years of age. She had been for years a sufferer from catarrh, so-called and treated, for deafness, and was at the time spoken of under treatment by a specialist. In a few weeks he was able to remove what proved to be a gold cuff-button from the nose. Needless to say, improvement to health immediately became manifest, and I began the correction of some of the irregularity of the superior teeth, the result of which is highly satisfactory. Upon investigation and inquiry, I found that at about the age of three years, a boot-button was removed from the nose of this child by a surgeon in London, Eng., on the same day it was placed there by the child. But events go to show that the cuff-button was already in the nose when the boot-button was taken away. Up to that time she was a healthy child, but soon after stains appeared on her pillow, and she had to make frequent use of the handkerchief. The discharge ceasing at times for days, pains in the head would occur, followed by relief when the discharges began. The last two years large quantities of dark-colored matter came away night and day, and she was very deaf at times. Her articulation was very imperfect, sleeping with her mouth open, and in fact during her waking hours her mouth was seldom shut.

Now, it would seem that this gold button had produced similar conditions that adenoid growths do, impediment to nasal breathing, open mouth, and an influence which, I think, has escaped Dr. Hooper, viz: the effect of the tongue lying within the lower jaw causing it to widen and expand beyond the upper. If the conclusions arrived at by the writers on this subject are to be accepted—such as atmospheric pressure exalting the superior arch, impeded air passages preventing development of the facial lines—it would be reasonable to expect that the weight and force of the tongue would have a similar effect upon the lower jaw, causing the bicuspid and molar regions to be pressed outwardly. That it has so in this case cannot, I think, be doubted, for it will be seen by the models that the molars and second bicuspid of the lower jaw are outside of the normal articulation. The depression of the superior bicuspid and sixth-year molars is also quite marked, and in this case a very short upper lip



Fig. 5.



Fig. 6.

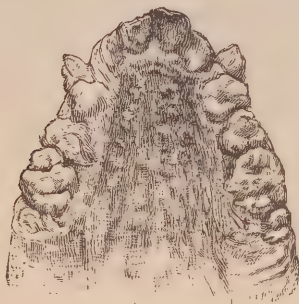


Fig. 7.



Fig. 8.

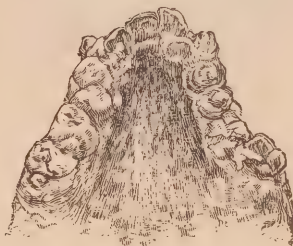


Fig. 9.

has doubtless had an effect upon the incisors, compelling the cuspids to erupt high up and outside the arch. It should be borne in mind that the impediment to nasal breathing did not occur till after the first dentition had taken place, and considerable development of the oral cavity had obtained; therefore, the irregularity, being of the type referred to in Dr. Hooper's paper, is more noteworthy. I may also mention that mouth breathing still continues, and extensive enlargement of the tonsils, but all manifestations of catarrh have ceased. From causes beyond my control I have been unable to accomplish all I desired, but I show models of what has been done up to this time.

I also present another case (see cuts No. 8, 9) which gives another variation of irregularity, but with many of the distinguishing features of the other, viz: the wide lower jaw, the depressed upper bicuspids and molars, and high arch, but with a *massing* of the superior incisors and cuspids. This is another case of mouth breathing and defective articulation. Patient is nearly twenty years of age, and only came under my care a few months ago. Her early history is not obtainable in all the detail that I would wish, but sufficient, I hope, with what I otherwise present, to bring this matter of the influence of obstructive nasal breathing and the injurious effects of mouth breathing, to the earnest consideration of the dental profession, and through our co-operation with the medical, try to prevent the numberless ills resulting therefrom. Cuts No. 1, 2, 2, 4, from Dr. Hooper's pamphlet, showing appearance of children having adenoid growths; cut No. 4 being cast of upper jaw of cut No. 4, aged 10.

Extracting Difficult, Broken Roots.

By J. L. BENSON, L. D. S., Winnipeg Man.

When I find a difficult root of a tooth that is broken deep in the alveolus, I select a fine drill and a small screw-nail a little larger than the drill. I then drill into the root, and insert the screw. Instead of grasping the root alternately by cutting through the alveolus, giving much unnecessary pain, and as in the case of the cuspids causing ugly gashes with the alveoli forceps on account of the thinness of the outer plate, I grasp the screw-nail without touching the gum, or the process. In this way, I can extract any root, no matter how badly it is broken. It is far ahead of the orthodorr screw forceps and the ordinary screw. It does not look very scientific, but it is successful, which, after all, is what you or I would look for if we had just such a root to extract.

Sulphuric Ether and Inhalers.

BY C. J. MOULTON Stanstead, Que.

The use of anæsthetics in dental surgery will likely continue as long as the extraction of teeth may be necessary ; and it is important to dentists that the best and safest means should be discovered to administer those which are most favored in operations in the mouth, especially if of a prolonged character. Situated as I am, in a country practice, it has not been heretofore convenient to use nitrous-oxide gas, which has very much to commend it, and I have been forced by circumstances to select sulphuric ether for exclusive use.

The sulphuric ether used for inhalation is purified by agitation with water, and is freed from an excess of alcohol by the action of chloride of lime and freshly calcined lime. Though sulphuric acid is used to make ether, there is no sulphuric acid in pure ether, as it is removed by distillation. Yet it may frequently happen that the commercial article, especially if manufactured by firms of no chemical repute, may contain impurities of a dangerous character. To know if ether is impure, dip a piece of litmus paper into it. If there is acid, it will redden the litmus. Other tests are as follows : Place a little on a watch-glass ; if pure, it will leave no residue. Also pour a little in a common test-tube ; if pure it will boil by the heat of the hand. If the purest ether is kept too long in a warm place or with a loose cork it decomposes. It is therefore absolutely necessary for success, both to rapidity of etherization and safety, that the material used should be as absolutely pure as chemistry can make it.

I have been led to make some special research as to the best mode of administration, because of repeated failure to hasten and deepen the anæsthesia in the ordinary way. The common cones used have many objection, among which I may mention the following : The unpleasant coughing and the oppression in breathing, caused by the too instantaneous application of the ether in a confined space ; the frequent scaring of the face, if the ether is spilled on the side of the cone, or if the sponge inside containing the anæsthetic comes in contact with the nose or face ; it wastes the material ; it confines the air too much. In administering ether it is important to hasten the process, that is, to get the patient to sleep as quickly as possible with the least amount of ether. Even if with an ordinary cone, a tube of glass may be passed through the back into the sponge, and before the ether is poured in, which may be done without removing the cone, it is best to allow the patient to breathe through the inhaler

several times to subdue any fear, and gradually flowing the ether through the tube. In connection with this paper I take the liberty to exhibit an inhaler of my own construction, designed to facilitate the administration, to hasten the process, to save time and material. I used this constantly in my late father's practice in Stanstead for eight years, and nearly all the physicians in that locality have used it personally, or had me to assist them in operations, not only in the mouth, but in more serious surgical operations. I have found very much less of the troublesome coughing and suffocation, loss of color, while the average time of anæsthesia varies from four to ten minutes. The breathing can be most accurately watched at the "globe," as every inspiration is there recorded to the eye. It is also unnecessary ever to disturb the patient by removing the inhaler from the face, as the ether can be poured through the valve to the sponge. There are a few important points in administering ether not as necessary to success as purity of material, yet preferable if possible to obtain them. One is, to administer the anæsthetic in a cool room before breakfast after the patient has had a night's repose and the system is freshly prepared for it. Another is to begin and finish the operation with the patient in a reclining position, and not to raise the patient fully erect, at least, until recovery is pretty well advanced. It is better to turn the head to one side to let them eject the blood than to elevate the chair. It is considered unsafe to give ether in cases of apoplexy, epilepsy, idiocy, and also care has to be used in cases of stout people. If the patient snores loudly, withdraw the inhaler and raise the chin, not the whole body; when respiration is quick withdraw it. The usual care is necessary to remove or loosen collars and corsets, and artificial teeth from the mouth. I have avoided using stimulants, as a rule, before administering ether: as an exception it may be proper where the pulse is feeble and the blood impoverished, especially when the patient is not accustomed to stimulants.

Nitrous Oxide in Excavating Dentine.

BY X. Y. Z., TORONTO.

When nitrous oxide gas was first introduced in its condensed form into England, one of the first experiments I performed with it was inhaling it in the office of a dentist in Liverpool, to relieve pain in the excavation of sensitive dentine of my own teeth. I was travelling at the time, and found I had to submit to an operation at a time when my nervous system was

unstrung, and it occurred to me that if nitrous oxide was the safest though the shortest anæsthetic for extraction, it ought to suffice for the operation in question. After its introduction into Canada by Johnston Bros., I regularly used it for the purpose, and I remember assisting at its use in Montreal, when the late Drs. Bernard and Webster both used it at my suggestion in their own offices. I am aware that very many now use it not only here, but in the States and in England.

However, I would advise the admission of air in every case, where repeated inhalations in prolonged operations have to be taken. There is no necessity in any case to carry it to the extent of full anæsthesia, because we must remember that it is not a toy to be trifled with. Although no deaths have occurred, there have been hundreds of evil results such as headache, persistent nervousness for months, and other effects which are not alone due to impurities in manufacture, but to idiosyncrasies of the patient. When the blood ceases to be oxygenated, carbonic acid accumulates, and the condition is nothing more nor less than one of asphyxia. If nitrous oxide was continued as long as ether or chloroform, and did not its effects rapidly subside, we would hear of fatal cases by the score, for my conviction is, that there is no more abused article in our dental materia-medica than this so-called "painless" gas.

Insensibility is produced in perfect consciousness, and while it is questionable if it is not best for severe shock to carry it to the extent of full unconsciousness, it is unnecessary to do so when used for lancing abscesses in the absence of cocaine, or in administering for the excavation of sensitive dentine. Recently, I had several cases of nervous prostration from too frequent use for excavation, and my experience leads me to warn operators not to imagine that they or their patients can play with the gas. To produce perfect anæsthesia and prevent excitement, we know it is necessary to exclude atmospheric air, but I repeat my belief that for such cases as I mention it is better to admit air. I confess I have had more success however, from a mixture of oxygen and nitrous oxide.

Notes from the Proceedings of Societies.

Dental Convention at London, Ont.

The first annual convention of the Ontario Dental Society was held in the Masonic Temple, London, June 27th and 28th. The attendance was quite large, and representatives were present from all parts of the Province.

The report of the committee appointed in Toronto to prepare a code of ethics was received and adopted. Dentists wishing to become members of the society were required to pay a membership fee of one dollar, and sign a declaration promising obedience to the rules of the society. Nearly all complied, and within a few minutes the society was established with a good membership. The code of ethics adopted by the society dealt chiefly with the subject of unprofessional conduct, particularly in the manner of advertising. The following will be considered unprofessional advertising :

1. Handbills distributed on the streets or through the newspapers.
2. Advertisements in the newspapers offering to do work at certain prices.
3. Advertisements stating that the advertiser is the only dentist using a certain process in either operative or prosthetic dentistry.
4. Advertising to extract teeth free on certain dates.
5. Advertising by the use of photographs, lithographs, or cuts.
6. Advertising by the use of show-cases at the front door or window, or by the use of show-cases at fairs.
7. Advertising in such a manner as to claim superiority to all other dentists.
8. Advertising to perform dental work at reduced rates.

It was resolved that this code may be amended, or additions made to it, at any regular meeting of the society, and that members convicted of having violated any of its provisions shall be expelled from the society.

The election of officers for the ensuing year was then proceeded with, and the following were unanimously elected : Geo. C. Davis, London, President ; N. Pearson, Toronto, Vice-President ; C. V. Snellgrove, Toronto, Secretary ; S. Wolverton, London, Treasurer.

Some other matters of a business nature connected with the founding of the society having been disposed of, it was moved by Dr. Willmott, seconded by Dr. Martin, and unanimously resolved :

1. That the members of the Ontario Dental Society have learned with profound sorrow of the death of Curtis Strong Chittenden, D.D.S., L.D.S., of the city of Hamilton, on the 8th day of May, 1889.
2. That we embrace the opportunity of our first meeting since the sad event, to place on record our appreciation of the high character of our deceased friend, of his valuable services to the dental profession extending over a period of forty years, and of his uniform courtesy and kindness to his professional brethren, and to give expression to the profound sense of personal loss and bereavement which we feel owing to his removal from our midst.
3. That we convey to Mrs. Chittenden and her family our sincere condolence in their affliction, and assure them of our warmest sympathy.

4. That these resolutions be entered upon the records of the society, and that the secretary be instructed to have an engrossed copy prepared, signed by the president and secretary, and forwarded to Mrs. Chittenden.

The remainder of the first day was devoted to the reading of papers and discussions upon the same. Dr. Willmott read a most interesting paper upon "Dentistry of Age," in which he reviewed the history of dentistry in Ontario since the passing of the Dental Act twenty-one years ago. This paper was considered so valuable that Dr. Willmott was asked to donate it to the society for publication. Dr. Hipple, of Stratford, read a paper on "Aluminum as a base for Artificial Dentures," setting forth the advantages of this new and wonderful metal. Dr. Martin, of Ottawa, in a paper on "The Past, Present and Future of Dentistry," presented some interesting facts in connection with the early history and progress of dentistry, and some careful speculations in reference to the future.

The next forenoon was devoted to clinics in the offices of city dentists. Dr. Beam constructed a Richmond gold crown, and Dr. Snellgrove a Richmond crown with porcelain front. Dr. Pearson inserted a filling with crystal gold, and Dr. Weagant demonstrated the use of copper amalgam. Dr. Teskey exhibited some microscopical specimens in the rooms of the Entomological Society.

In the afternoon the visitors were entertained by the local dentists. Cosy carriages were provided, and a delightful drive, lasting several hours, was taken through the city and suburbs. Towards evening, the entire party was conveyed to Springbank by the steamer "City of London," which had been chartered for the occasion. The beauties of this place having been seen and admired, the party sat down to an excellent lunch in the pavilion. Toasts were drunk, speeches were made, and songs were sung, and a most enjoyable hour was spent. Dr. Roberts, of Brampton, then read a very instructive paper on "Alveolar Abscess," and, after a short discussion, the "City of London" was boarded for the return trip, the city being reached early in the evening. While the convention, as a whole, was an undoubted success, all agreed that the entertainment provided by the city dentists was *the* feature of the meeting, and more than one was heard to say that that alone more than repaid him for his attendance. The next meeting of the society will be held in Toronto, beginning on the third Tuesday of July, 1890.—(A. H. H.)

Eastern Ontario Dental Association.

By JOHN ROBERTSON, L.D.S., Secretary.

The tenth annual meeting of the Eastern Ontario Dental Association was held in the Young Men's Club Rooms, Cornwall, on the 18th and 19th of June, and proved unusually successful.

President Clint, L.D.S., of Almonte, occupied the chair, and about twenty of the most prominent dentists of Eastern Ontario, also some of the resident physicians, took part in the proceedings.

The election of officers for the ensuing year resulted as follows: J. C. Liddell, L.D.S., of Cornwall, President; J. C. Bower, L.D.S., of Ottawa, Vice-President; J. Robertson, D.D.S., of Ottawa, Secretary-Treasurer.

Considerable discussion took place on the proposed new Dental Taxation Act, and the feeling of the meeting was strongly opposed to any new innovation which would have a tendency to place licentiates under any such obnoxious law.

After the general routine of business was completed, the President called on C. A. Martin, L.D.S., of Ottawa, who read a paper on "Mechanical Dentistry," giving a very full description of the various modes of retaining artificial teeth by plates. He emphasized particularly the practicability of vulcanite, and also dwelt at some length on the more modern system of bridge work.

The next paper was on "Plastics as a Filling Material," and was very ably handled by C. B. Mansell, L.D.S., of Carleton Place, who approved of cement fillings in a great many cases where gold would prove a failure.

G. E. Hanna, L.D.S., of Kemptville, read a paper on "Dental Ethics," and extolled the men of high professional principles, and with equal if not more vehemence denounced the "itinerants" or "quacks" who always degrade any profession they may happen to enter.

Several peculiar cases of difficult diagnosis were given by Messrs. Hanna, Clement, Flint, and Martin, which elicited a great deal of discussion, and were both interesting and instructive.

The morning of Wednesday, June 19th, was devoted to clinics. G. J. Clint, L.D.S., of Almonte, made a gold crown for an inferior left second bicuspid.

J. C. Bower, L.D.S., of Ottawa, attached an all gold crown on a superior left first bicuspid root.

An approximal cavity in a superior central incisor was filled by S. S. Davidson, L.D.S., of Ottawa, who used Watt's sponge gold.

G. H. Weagant, L.D.S., of Cornwall, explained the peculiar tooth-saving properties of his copper amalgam, and the proper way of manipulating the same.

In the afternoon the visitors were driven to the principal places of interest, including the paper factory, after which they embarked in a pretty little steam yacht, chartered for the occasion, for Stanley Island, where a sumptuous dinner at the Lansdowne House was in readiness for keen appetites, made more so by the bracing air of the St. Lawrence.

The party was pleasantly augmented by some lady friends, who added not a small quota to the enjoyment, particularly to the bachelor members of the convention.

After toasts and short speeches, the party returned to Cornwall, where the convention was adjourned—to meet next year in Ottawa—all having expressed themselves highly pleased by the right royal manner in which they had been entertained by the resident dentists of Cornwall.

DENTAL ASSOCIATION, PROVINCE OF QUEBEC, BOARD OF EXAMINERS.—The annual meeting for the examination of applicants for license to practice in the Province of Quebec, was held in the rooms of Laval University, Montreal, by kind permission of the Faculty. The full Board were present: Dr. C. F. F. Trestler, President; C. Brewster, L. J. B. Leblanc, S. Globensky, Geo. W. Lovejoy, E. Casgrain, W. Geo. Beers.

The amended Act was submitted, and the Committee on By-laws presented a report embodying a draft of a new code, which with the Act, was ordered to be printed and sent to the Licentiates.

The examinations are divided into primary and final: the former consisting of anatomy, physiology, chemistry, and a sessional in mechanical dentistry may be passed after attendance upon the required lectures. Students producing certified tickets of having successfully passed in the examinations in the three first in any Quebec Province Medical College, are exempt from examination on these subjects before the Board. The oral examinations are by and before the full Board. In the written 100 is the minimum, fifty necessary to pass. Seventy-five and over is first-class, sixty-six second class. Failure in any one branch involves rejection.

After two days severe examination the following gentlemen were received and were congratulated by the President, Dr. Trestler. Messrs. F. A. Stevenson, C. H. Moulton, Stanstead, J. B. Vosburgh, J. Fitzpatrick, J. Mongon, C. H. Cotton. Messrs. W. J. Kerr and W. T. Throwsby passed the primary. One candidate for the final was rejected. The next meeting of the Licentiates for the election of a new Board will be held in Montreal in September. Preparations are being made for a whole day's convention, to

discuss papers, clinics, etc., the day previous to the meeting. Due notice will be sent to the members. L. J. B. LEBLANC, *Secretary*.

The following extract from the new By-laws will be of interest :—

"Among other things, the following are deemed derogatory to the honor and dignity of the dental profession :

(a) Aiding or abetting, by a licentiate, in the violation of any clause of the law respecting the said profession in this Province.

(b) Allowing, by a practising dentist, any person not being a licentiate to practise said profession under his name or patronage, or under any name or style whatsoever in his office.

(c) Entering, by such practising dentist, into an agreement with a rejected candidate for final examination, so as to enable him to unlawfully practise said profession, or to evade the law respecting the practise of dentistry in this province.

(d) Allowing, by such practising dentist, a licentiate then suspended from the exercise of said profession to practise it under his name or patronage, or in his office, under any name or style whatsoever, or entering with him into any agreement so as to enable him to unlawfully practise said profession, or to evade the law respecting the dental profession in this Province.

Licentiates are not allowed to open branch offices under the charge of students or other unlicensed parties."

FIFTH, SIXTH, SEVENTH, AND EIGHTH DISTRICT DENTAL SOCIETIES OF NEW YORK STATE, OCT. 25TH, ETC., 1889.—*Continued from page 78.*—Dr. G. L. Curtis, referring to root-filling, believes in the immediate method as a rule. Prefers iodoform and peroxide of hydrogen as disinfectants in cases of abscesses where there is no fistula, that is in blind abscess; he goes through the gum to the apex with a lever, and then injects the sac with peroxide.

Dr. F. W. Law quoted figures to prove that ninety-seven per cent. of his cases had been successfully treated by the immediate method. The first essential is to cleanse pulp cavity. Uses peroxide, followed by bichloride of mercury solution as a germicide. If there is a blind abscess, peroxide will penetrate and cleanse it. If it will penetrate the tubuli of the dentine, why not an abscess? It will go where no instrument will penetrate. Drilling through the alveolus in blind abscess is good practice.

Dr. G. L. Curtis. Moisture is the cause of many abscesses. The treatment of root canals requires perfect dryness. Prefers the canal points of Dr. Darby. Then with the hot air syringe drives the hot air in until perfect dryness is secured. Uses chlora-percha for filling canal. Uses rubber

dam and never lets fluids of mouth enter the canal, as they carry up destructive agents. After filling the canal partially with the chloroform solution, drives up gutta-percha points. Dr. C. F. Rich used quill tooth-pick cut down as fine as desired, and barbed if required, instead of metal. —(*Cosmos.*)

Selections.

Embryo of a Parasitic Entozoa from a Tooth.

By JABEZ HOGG, F.R.M.S., M.R.C.S., Etc.

We are indebted to the Hon. Edward Murphy, of Montreal, for the loan of a paper reprinted from the *Journal of Microscopy and Natural Science*, July, 1888, and sent by the author to the Montreal Microscopical Society. The early writers who thought that the pulp of the tooth was a worm, would have been in the seventh heaven of physiological positiveness could they have but met with the parasitic entozoa examined by Mr. Hogg.]

Quite lately a medical friend requested me to examine and report on an interesting microscopical specimen, which it appears had "puzzled" him a good deal, and he was therefore the more anxious to learn something of its natural history. The "worm," as he termed it, was removed from the tooth of a domestic servant, who had suffered sometime from toothache and neuralgic pains of the face. The removal of a molar tooth afforded only temporary relief. At the end of three or four months, and on finding medical remedies of no avail, she met with a gipsy, who recommended her "to smoke the worm out of the tooth with henbane seeds." She obtained the seeds, and having placed them, as directed, on hot cinders, allowed the fumes to pass into her mouth. In a very short time, "six or eight worms dropped out of her teeth into a tumbler of water." This for a time seems to have afforded her relief, but as the pain again returned, and for which remedies proved unavailing, my friend, on one of his visits, induced her to use the henbane fumigation in his presence. In a very short time "a minute worm" wriggled from the mouth, and was caught in a tumbler of water. This he carried away with him, and on his return home put it up in a temporary cell, which was sent to me for examination. I may first say that, so far as I know, no precisely similar case has been well enough authenticated to be placed on record. Accounts have appeared, and to the effect that violent attacks of toothache have been traced to a "worm" lodged in the cavity of a decayed tooth. Furthermore, it has been said that the "worm" has been "smoked out," as in the instance related, by

henbane seeds. Such statements have hitherto been regarded with a good deal of incredulity by the medical profession. I may mention, however, that I have met with two or three well-authenticated cases of "worms" lodged in the nasal cavities, and there producing alarming symptoms, which have subsided after the worms were dislodged by tobacco smoke.

It is no uncommon error, which my friend has fallen into, of describing the specimen sent to me as "one of the worms." It is, however, neither a worm nor a maggot, but a veritable embryo of a parasitic entozoa. It belongs undoubtedly to the Trematoda or fluke family, a class of animals well-known to infest mankind as well as the lower animals. The puzzle in this case is, How did embryos of the fluke find their way into the patient's decayed tooth? Probably in one of two ways. In all likelihood the ova of the fluke will have been conveyed into the mouth and stomach by eating tainted or infected animal food, the liver of a sheep suffering from fluke; or the eggs may have been taken in infected or polluted drinking water; more frequently, however, in diseased meat, fish, or fowl, which during the masticatory process is left behind and safely lodged in a hollow tooth or an exposed portion of the alveolar process, there to be retained until more fully developed into the wriggling embryo, which was finally dislodged by the henbane fumigation. It is quite within the bounds of possibility that the patient may have unwittingly suffered from ascarides. In such a case, the ova or embryos, during their ordinary larval wanderings in search of a final resting place, which shall prove suitable for their adult condition, might find their way back to the stomach, throat, and mouth of the sufferer.

No fluke arrives at sexual maturity before passing through a cercarian stage of existence, while its tailed or larval form is usually acquired by passing through an intermediary host, a molluscan, or water animal. It may be a fish. The little water-snail, *Limnæa truncatula*, is undoubtedly the host, in its transition stage, of the liver fluke of the sheep, and the amount of these snails, seen at certain periods of the year about marsh lands, in river water, in cisterns, and ponds to which cattle and sheep resort to allay their thirst, is enormous.

Altogether, five specimens of the dislodged larval flukes were sent to me; four of them, however, owing to the want of proper precautions for their preservation, were spoilt, being completely covered over by the mycelia of a minute fungus. The cover-glass also of the mounted specimen was broken in the post, so that I heartily wish my medical friend had been a member of the Postal Microscopical Society. With a little difficulty I finally succeeded in remounting the young cercaria in balsam, thus rendering the body nearly transparent for microscopical examination. It

measures nearly a sixth of an inch in length. Its head, which is of a pale, yellowish brown color, is terminated by a buccal opening of a contractile, sucker-like nature. The hyaline integument of the body throughout is broken up by a series of longitudinal and transverse markings, which presents an appearance of irregularly shaped epithelial cells. The ventral opening is situated at the lower third, where a considerable cleft occurs, and here is seen to be the termination of a narrow gut, which runs from just below the buccal opening to this point, and is then lost to view. The lower third of the body constitutes what is nominally described as a tail-like appendage in the larval stage, and which is either broken off or absorbed in the fully matured fluke.

Filaria have now been found in almost every cavity of the body, either in man or in the lower animals, and it is not difficult to conceive how several of these embryos may have become lodged in the cavity of a hollow tooth of one among a class of persons who notoriously disregard the use of the tooth-brush.

Eye Strain Among Dentists.

Among the many ailments to which dentists appear to be exceptionally exposed are those caused to their eyes from overstrain whilst at their work. As has been pointed out over and over again, these ocular troubles have effects which influence prejudicially, the whole individual inducing in some cases the most severe forms of headache, hemicrania, and even disabling from work. The eyes of dentists have imposed upon them greater strain than those of most professional men, prolonged fixation in a constrained posture is detrimental even to the normal or emmetropic eye, but when this strain is imposed upon eyes which are structurally aberrant from the emmetropic type, it is sure sooner or later to give rise to intraocular disease. Sight to be perfect requires a regularly formed globe of the eye, duly developed ocular muscles, so that just and equal movements of the eyes can be effected, and a healthy state of the nervous system innervating these muscles. Added to these we must have a due blood supply of healthy blood to the vessels of the choroid, and a normal condition, as to shape, texture and nutrition of the media and internal parts of the globe. Departures from the due development of the globe, when, for example, it is too short or too long, produce errors of refraction, that is, the individual is unable to see objects distinctly at the normal range of eighteen or twelve inches, he may be short-sighted—myopic, or long-sighted—hypermetropic, but the results are the same—ocular fatigue, dimness of vision after a few hours work, recurrent headache when the eyes are used, especially severe

after doing fine work, or employing artificial light. Such eyes are commonly imperfect in another respect. They are astigmatic. The globe of the eye may be considered to be made up of a great number of circles running from vertical to horizontal, and the points of focus where the rays of light are collected together and become "an object observed" may be taken as the collection of the foci of these circles or meridia. When the globe is flattened, or bulges too much in one or another direction, the meridia are irregular and the foci are thrown out of the whole eye focus, and hence portions of the object seen will be blurred, and so we see things indistinctly—this is astigmatism. Now these defects of refraction, myopia, hypermetropia, presbyopia (old sightedness), astigmatism—are all remediable up to a certain point by kindly Nature herself. We accommodate the eye by its intra-ocular mechanism, and so in part counteract the effects of the abnormality. This effort at accommodation, however, cannot be maintained without imposing a severe and deleterious strain upon the eye. Again and again repeated, the eye becomes congested. Its nerves grow exhausted, and greater and greater efforts at accommodation are required to achieve the desired end, until at length choroiditis, or some other condition equally serious is set up, and the individual loses the use of the eye. The prolonged effect, also, causes severe lancinating headache, a condition which naturally soon tells upon the general health, and unless its true cause be determined and corrected this headache resists all medicinal treatment, and its unhappy victim goes about with the dread of a brain tumour, to add an additional horror to his existence. Fortunately these refractive troubles have only to be fully understood to be remedied, the mischief is we, many of us, fail to appreciate their importance, and persist in imposing the overstrain upon our eyes rather than seek for the advice of an ophthalmic surgeon and adopt glasses. We have yet to consider the other conditions engendered by overstrain, which we propose to do in a subsequent article.—*British Journal of Dental Science*.

Professor Flagg on Zinc Phosphates.

We are indebted to our friend Mr. Waite, of Liverpool, for the following communication from Dr. Flagg :—

Zinc phosphates are in just as indefinite a status as ever they were, with the exception that real workers are not now trying to make such fluids and crystals, as have been proved to be capable of making the quickest setting and most durable fillings, because such fluids and fillings do not remain good more than four to eight months. Just in proportion as fluids are less good, so they remain that good for greater length of time, and a pretty

good fluid will last from ten or twelve to fourteen months, sometimes even longer.

Next comes the celebrated "non-deteriorating fluid," which is made by allowing almost any make of clear fluid, having a specific gravity of fifty-two to sixty degrees, to stand until it separates, when, if it does this clear and thin, it is a very poor fluid ; but it stays as good as it is for years, three or four at least, and thus it is non-deteriorating, because it has deteriorated about all that it can.

It is from this kind of make, however, that the very best fluid ever produced has resulted, except that when this result is obtained the separation is very distinctive, and the resultant fluid comparatively small in quantity. When this excellent fluid is secured (which according to my work is about once in five or six trials, and no one knows why it is, or how it is that it comes so infrequently, so far as I am informed), then this fluid will not keep first-rate for more than four or five months, and often begins to deteriorate in even less time. Such crystals and such fluids as are known to be excellent, make those fillings of zinc-phosphates which are occasionally seen doing service in wonderful perfection for six or eight years or more. Thus far it has proved impossible to do any better with phosphate menstrua than this : All the various makers (Flagg included) are in one boat so far as regards the fluids, crystals, or syrups, with which they make their powders into mass for filling. Hence the effort now seems to be to get such a fluid as will best subserve the legitimate use of zinc-phosphates, which is never for fillings, strictly as such (unless they are expressly stated to be experimental), and then not to test which material is best, but merely to try as to whether the material one happens to have on hand will subserve a good purpose in that individual case. This seems poor professional work indeed, but I would unhesitatingly state that to be the best which the most proficient worker in zinc plastics can do, and the most ignorant can do just as well. The legitimate uses for zinc-phosphates are lining cavities, strengthening frail walls, largely filling such cavities as are to be partially filled with gold on the score of expense, or with amalgam, on the score of easy removal and possible contingencies ; or for durability of filling, combined with non-conductivity, maintenance of colour, etc., and for increased adhesion of fillings in saucer-shaped cavities, which are to be filled with combination fillings of zinc-phosphate and amalgam ; by such I mean fillings in which the two materials are introduced at such times as both are plastic, and thus the adhesion of the zinc-phosphate and the resistance of amalgam to attrition are utilized in one filling. These are the proper uses for zinc-phosphates, and it subserves all these purposes so very well that it seems a shame to ask it to do what it is well known it can seldom perform,

and then if it fails, condemn it as unworthy. In my opinion the unworthy is the individual who thus stigmatizes one of the most valued servants of dentistry.

And now I would say that, in the prosecution of this work of obtaining a reliable fluid for long conservation, no other modification seems to have given the results that we have derived from the gelatinising of the solution phosphoric acid. Whatever changes may yet take place in the phosphoric acid constituents of the menstruum (and these changes are protean), gelatin seems to retain its value for so long a time as to warrant the supposition that most at least of the material sold shall be utilised, while yet it is worthy of confidence; and even this fluid is impossible of accurate or positive duplicature. Made by like measurements and weights, dissolved by like heating for given length of time, filtered by similar filtration, no two consecutive results are precisely the same, and some are widely different. This is not so marked, however, in the gelatin fluids, as it is in the other good menstruum, but it is sufficiently so to produce, as the results of time, some half-dozen different varieties. First, those which maintain an almost absolute integrity as amber coloured, syrupy fluids; second, those which partially gelatinize with a sort of colloid jelly at the lower part of the fluid; third, those which separate into a viscid, whitish portion below, and a clearer, thinner portion above; fourth, those which increase markedly in viscosity, without materially changing colour, becoming so thick as not to pour from the phial, but which must be taken by means of a spatula or small probe. These are the most usual changes which occur, but unlike those of the better fluids (those most liable to become promptly worthless), these changes do not appear to cause much depreciation of value in this reasonably good menstruum—at least not for a long time.

By stirring together the separated portions, a fluid is obtained which continues to make good results, and the thickened fluid seems only to make a somewhat slower setting mass, a change which to many is rather acceptable than otherwise. Thus it is, that in our last three or four years of working upon zinc plastics, the gelatinized fluids have markedly taken the front rank, and with this work which has, we think, done something of positive value, and has more than ever placed the zinc-phosphates out of the category of material for filling, we have constantly presented to our profession repetitions of the same old compounds, which are advertised under various names, when they are truly unimproved, and utterly unreliable.

I have no time to enter into the discussion of so-called improvements in zinc-phosphate powders, but I will merely say that as yet the old so-called nitrate of zinc powder, pure and unadulterated, is the best base we have ever had.—*Journal of British Dental Association.*

Cotton as a Root Filling.

BY DR. J. REED, PHILADELPHIA.

Extract of a paper in the Odontological Society of Pennsylvania.

Firstly, it can be easily removed. Secondly, it can be thoroughly permeated with medicaments which will not destroy septic matter, but prevent its entrance.

It has been said that "The medicament evaporating, leaves the cotton unguarded."

Gentlemen, have you ever heard of carbolized cosmoline? and will you kindly inform me what is its daily rate of evaporation?

It is with carbolized cosmoline that cotton dressing should be soaked.

The late Dr. H. A. Randolph boiled a frog's foot in cosmoline to destroy any putrefactive germs which might remain, and then allowed it, covered by paste, to stand for an indefinite time. Week after week the foot stayed unchanged, the experiment proved that cosmoline is aseptic in the highest degree, and that a sterilized body placed in it will remain intact so long as it is covered.

The use of cosmoline in canals is not original with me, but was first suggested by Dr. George Elliot, of London.

Having now given you my defense of cotton dressings, let us proceed to consider how and when they should be inserted.

Any practical method of cleaning and sterilizing the canals may be used, but where the pulp was putressed, I invariably employ the gradual stopping process, which is so clearly explained by my beloved and respected friend, Dr. Flagg. Of course, you are familiar with it; but to keep the links in my chain of evidence perfect, with your permission I will explain his manner of treatment, which has the advantage of cleansing with equal thoroughness, the small and large canals.

The tooth must first be opened and the floor of the pulp chamber so burred, that the mouths of all the canals visible or invisible, shall be exposed.

Then, if considered practicable, they can be enlarged, extreme care being taken not to puncture the cementum.

At the first sitting, all the decomposing material that can be reached, should be removed. And after the passage has been thoroughly washed by streams of warm water squirted into them from the syringe, they should

he dried and protected by the napkin or dam. Finally being filled loosely with a cotton dressing thoroughly soaked in pure carbolic acid, or whatever medicament may be preferred.

Extremely sensitive teeth with open canals, have yielded to this treatment again and again, becoming sound and painless in a few days. Should the tooth resist the first treatment in the morning, allow cotton to rest in the canals very loosely, and tell the patient to return at eleven, when the treatment again being performed, the pain will, in almost every instance, abate.

By this method the hair-like canals are perfectly cleansed ; for the organic matter putrefying in them is each day washed out, while each cleansing is followed by an application of carbolic acid, which, if the tooth is dry, will go into places inaccessible to cotton.

With these means I think you will confess that any canal, no matter how minute, can be cleaned and sterilized. This being accomplished and the last dressing allowed to remain, the tooth should be temporarily filled with gutta-percha or cement for a length of time sufficient to test the thoroughness of the work ; which having been satisfactorily demonstrated, the tooth may be permanently filled. The details are as follows :

Put on the rubber dam, remove dressing and blow hot air into the tooth till it becomes painful. Then, using a hypodermic syringe filled with warm carbolized cosmoline, pump the canals full.

In dealing with the large canals this will be an easy process. In those of small diameter the passage of the cosmoline to the apex will be aided not only by capillary attraction, but also by the contraction of the cooling air. By finally pressing a pellet of cotton soaked in cosmoline over the small orifices, and then inserting a minute shred of cotton wherever possible, it seems reasonable to suppose that the canal can be filled to the apical foramen, with an antiseptic substance sufficiently viscid to exclude moisture from without. Cotton should then be packed in the large canals to act as a support for the medicament.

The canals should be filled with cotton to the pulp chamber, and a small pellet soaked in cosmoline placed over the orifices of those which are too small to allow the entrance of a thread. The cavity should now be washed with chloroform to remove superfluous grease, and the pulp chamber filled with gutta-percha or cement. I connect the mouths of the canals with protected cotton to expedite venting, should it be necessary. This is merely my personal experience. It is not essential. The filling to be used in conveying the contents of the pulp chamber of course must vary according to the individual peculiarities of the tooth.

How is it possible for a tooth thus treated to need venting?

Because in every case there is a strong probability that the outer portion of the apical foramen may be unprotected, and, moreover, the place where the living and the dead tissues join is always a weak spot. And after all has been said and done, and the greatest care has been used, a gouty lymphatic or plethoric patient may most unexpectedly give us a very serious example of periodontitis.

Dr. Truman : Before filling a canal it must be properly treated, and no tooth is properly prepared where the canal is not free from decomposed tissue. As the dentine is made up of innumerable tubes, and that these contain organic matter, if this material undergoing decomposition is not included in the treatment it becomes a constant source of danger to the tooth. It is necessary to reduce this to an insoluble compound, and this is best done by keeping the canal under the action of oxy-chloride of zinc. This, in my judgment, is at present the best known filling material for canals. I am aware cotton is a good filter for micro-organism, and as long as it is not disintegrated in the canal it may be an effective agent ; but when this does occur the results are exceedingly disastrous.

Dr. Kirk : Filling root canals with cotton armed with carbolized cosmoline, is, in my judgment, no argument in favor of cotton, but one in favor of cosmoline. The cotton is merely incidental, in the same way it is often used in connection with oxy-chloride of zinc, viz.: as a vehicle for carrying to place the real filling material, which is the cement. Cosmoline is a heavy hydro-carbon oil, totally unalterable in air or moisture by virtue of its non-affinity to oxygen. It is sufficiently viscid to remain in the canal almost without the help of cotton, which, in its relation to the cosmoline, fulfils the same function as the old root filling of gold saturated with gutta-percha solution.

In its general characteristics, a root filling of cosmoline and cotton would be very similar to that of paraffine, which is exceedingly valuable, and can be pumped in a melted state into the finest canal—with the advantage that when it is chilled and solidified it is denser.—*International*.

Thoughtful Words.

At the banquet of the Harvard Dental School Alumni, Governor Ames, in the course of his speech paid a high compliment to the dental profession. He said :

“ Dentistry, has, in fact, become a science ; and it is a very useful science. Health depends in no small degree upon the proper mastication of food, and the dentist enables many of us, who but for him would be unable to do so, to eat properly. In two principal ways he aids us—by rebuilding

our teeth when they are worn, and by supplying us with new teeth, when those which nature has given us are no longer serviceable. He is indeed a benefactor, and, as Governor of the Commonwealth, I am very glad to say to you, for her people, without you we should be but badly off. You are an essential part of our society, and as such, we accord you the esteem and respect in which you are held. It has been one of the gratifying events of my administration that since it began you have been given formal recognition by the Commonwealth. The law creating for the dentists of this State a Board of Registration, received my approval, not only official, but personal. I was of the opinion when the measure reached me, as I had been for some time before, that there should be some guarantee that a man who was to exercise the profession as a dentist, was properly qualified. This guarantee the law referred to provides. I know that its provisions meet your approval, and that its operation is beneficial. You may be confident that while I am Governor, any law so wise as this, and so far-reaching in its beneficent action, which may come to me from the Legislature, will receive my approval." (Loud applause.)

Dr. Peabody referred to the present tendency of medical men to become specialists, and said: "Certainly there is no such thing as perfection in any one department without concentrated devotion to it. The specialists owe to themselves and their peculiar departments a very high standard of general culture. (Applause.) No man is fit to be a specialist who does not bring to his peculiar branch of his profession a thoroughly liberal education. (Applause.) I do not mean a formal college education, though that, I think, is always desirable where it can be had. But by a liberal education I mean culture in general literature, in the essential departments of science where possible in classical literature, and certainly in all the departments of science that have a relation, however seemingly remote, to the special department in hand. (Applause.) Your work is not only to keep your profession where it is, but to advance it to a higher and ever higher degree of perfection. In every department progress is made not by the mere narrow specialist. All that he can do is to move in the track in which he starts. A narrow man, however skilful he may become in a certain line of work, if he knows very little beyond that sphere, never advances in his own department. He simply does journey work, and is a mere journeyman all his life long. (Applause.) A man who advances in his own department must necessarily be intimately conversant with all that is nearly associated with that department. In your profession I should say that a knowledge of everything appertaining to the human system, to its anatomy, to its physiology, to the diseases to which it is liable, would be valuable, for there is no portion of the human frame and no experience

through which the human frame can pass with which your profession is not more or less connected. Then, undoubtedly, important improvements are to be made in connection with the chemical and scientific apparatus which you employ, improvements that may be made from an intimate knowledge of chemistry, of physics, and of natural science. Then you want to raise your profession in the public estimation. You want it to stand where you know it ought to stand (applause), and you can make it stand there if you present yourselves as men of high and generous culture, as standing in every respect alongside of the foremost members of the community as cultured and influential citizens. You can advance the position in which you can collectively stand by your individual efforts for your own improvement, advancement and elevation as learned and scientific men, and, above all, as men of high moral and religious principle." (Loud and prolonged applause.)

During the evening the following letter was read from Oliver Wendell Holmes, the reading being frequently interrupted by applause:

"I am sorry to say that I shall not be able to attend the meeting of the Harvard Dental Association or take an active part in its proceedings. I have a real interest in the welfare of a profession to which so many of us ought to feel grateful with every word we speak and every morsel we swallow. Few persons have passed the age of three score years and ten, retaining their own self respect and a proper regard to appearances, whose mouths do not flash with incisors which never knew what it is to grow from a socket or to cut their way through a gum. By the thoughtful and ingenious devices of the dentist, childhood is protected from the destructive processes which threaten and tend to undermine the structures essential to health and beauty, youth is rendered doubly charming, middle age comely and old age respectable. We cannot be too grateful to our dental friends who do so much for us all, and it is pleasant to see them gathered together to use the organs in their own mouths in the important function to which the preceding hour has been devoted, and now to exhibit those same organs in the smiling amenities of social intercourse. I am always pleased to hear of the success of the graduates of the dental school whom I have had the pleasure of counting among the audience at my anatomical lectures. I will not refer to those established in our own city who have filled and are filling so well the places once occupied by Dr. Flagg, Dr. Joshua Tucker, Dr. Harwood, and their more immediate successors. But I was glad to know that the son of my classmate, Dr. Horatio Cook Meriam, who bears his name, was prospering in a neighboring city, famous of old for its witches, and in later years for its bewitching daughters, whose most precious attractions are safe, I am sure, in his hands. In my visit to Cambridge, England, two years ago, I met Dr. George Cunningham, one of the most intelligent graduates of the class of '76, thriving and happy in a charming old residence under the shadow—the light rather—of the great university. Wishing you all equal success and happiness, I am, gentlemen, very truly yours, OLIVER WENDELL HOLMES."

Campho-Phenique.

By J. FOSTER FLAGG, D.D.S., PHILADELPHIA, PA.

The rapidly developing importance of this peculiar combination of carbolic acid and camphor impels me to a presentation of its especial claims as, probably, the most remarkable medicament which has ever been offered in connection with dental therapeutics.

When it is known that it is a notable germicide, an efficient antiseptic, a non-irritant, a decided local anesthetic, non-poisonous, insoluble in water or glycerine, does not discolor or stain, is possessed of an agreeable odor and not disagreeable taste, and maintains an unchanged integrity, it will at once be recognized as wonderfully adapted to a large proportion of all dentopathological conditions, from sensitivity of dentine, through the varying conditions of pulp-irritation, pulp-devitalization, pericemental irritation, alveolar abscess, and caries or necrosis of contiguous osseous structure, and that thus it must rank as one of the most, if not *the most valuable* polychrest which dentistry possesses.

During the past session of the college with which I am connected (since September, 1888) I have availed myself of the extended opportunities afforded for a decisive clinical record of this material, and the results have been so gratifying that it is with much satisfaction that I present its claims to recognition, and urge a prompt acceptance of the many benefits it has to bestow.

Where cotton is indicated as a wedge, and especially where marked sensitivity of dentine exists in connection with such cavities between teeth, both the discomfort attending separating and the pain attendant upon subsequent preparation of cavities are largely, and frequently completely, abrogated.

In cases of pulp-irritation, even of severe grade, its application, upon cotton, will almost invariably demonstrate its high rank as a "pain-obtundent."

In devitalization of pulps its use as the menstruum for the arsenic and acetate of morphia in our "devitalizing paste" seems to have already given evidence of its value as a local anæsthetic in that connection. As a disinfectant of tissue surrounding pulp-cavities and canals which have contained putrescent pulps it has made an excellent record, and has proven itself, by its variety of peculiarly acceptable tributes, to be one of the very best applications we have ever had for the purpose.

As a medicament, or ingredient of medicaments, for canal-dressings, either temporary or *permanent*, upon cotton, its combined characteristics of *antiseptis* and *insolubility* must command favorable recognition.

As an antiphlogistic in the earlier stages of sthenic pericementitis, applied upon the gum with small pads of muslin and renewed with *only desirable infrequency*, it has oftentimes been able to produce the attempted resolution ; and, in cases where this was found impossible, to largely mitigate the suffering attending the induction of suppuration.

As an antipyogenic, used by injection into fistulæ, either in full strength or diluted by fluid or viscid cosmoline or lanolin, it has produced eminently satisfactory results in some markedly discouraging cases.

It will thus be seen that, from the dental stand-point, campho-phénique is a medicine which it behooves us to test thoroughly ; that if it shall be found to perform even a portion of the good offices which it so largely promises, suffering humanity shall promptly rejoice over this additional assuager of some of its many ills.

Although intimation of other uses than those pertaining strictly to dentistry might be here regarded as irrelevant, yet so many phases of trouble, such as wounds (cut or contused), burns, sprains, intolerable itchings, etc., are so decidedly relieved by applications of campho-phénique (either pure or diluted) that I feel sure that those unfortunates who may chance, through such mention, to find relief from these inflictions cannot but feel grateful for this information.

Campho-phénique is stated by its manufacturers, The Phénique Chemical Company of St. Louis, to be a definite chemical compound, having a formula $C_8H_{11}O$, and thus, "for obvious reasons," it has had given to it the name under which it is presented to the healing professions. *Cosmos*.

Our Canadian College.

University of Toronto—Department of Dentistry.

In May of last year the Senate of Toronto University passed a statute affiliating the Royal College of Dental Surgeons of Ontario, and formulated a Curriculum in Dental Surgery leading up to the Degree of Doctor of Dental Surgery. The first examination for the degree was held in March last, when a considerable number of candidates presented themselves. The papers written were of such excellence as to secure general commendation from the examiners, five of whom were M.D.'s and two D.D.S.'s.

A special convocation for conferring Degrees in Medicine and Dentistry was held on April 22nd. Dr. Willmott, President of the Dental Faculty,

presented the embryo D.D.S.'s to Sir Daniel Wilson, President of the University, who, in the absence of the Chancellor and Vice-Chancellor, conferred the degree. The occasion was of considerable interest as being the first on which a Doctor's Degree in Dental Surgery was conferred by any British University.

The following are the names in alphabetical order of those who received the degree: F. S. Brown, J. H. Carrique, A. M. Clark, D. Clark, N. W. Cleary, E. Cunningham, E. H. Eidt, C. C. Ferguson, T. Henderson, A. H. Hipple, J. T. Ireland, J. J. Kerr, F. Killmer, W. A. Leggo, H. P. Martin, R. G. McLaughlin, C. S. McLean, J. W. Oakley, A. Rose, A. J. Smith, J. Stirton, J. H. Swann, W. E. Willmott, H. Wood, C. H. Ziegler.

The following are the Honor lists. Candidates in Honors are arranged alphabetically in two classes; those who fail to obtain Honors are placed in Class III. in alphabetical order, together with Pass candidates:

Operative Dentistry—Class I.—F. J. Brown, A. M. Clark, E. Cunningham, T. Henderson, A. H. Hipple, F. Killmer, W. A. Leggo, R. G. McLaughlin, J. W. Oakley, A. J. Smith, W. E. Willmott, C. H. Ziegler. Class II.—N. W. Cleary, C. C. Ferguson, J. J. Ireland, J. J. Kerr, H. P. Martin, C. S. McLean, A. Rose, J. Stirton, H. Wood. Class III.—J. H. Carrique, D. Clark, E. H. Eidt, J. H. Swann.

Dental Prosthetics—Class II.—Brown, Hipple, Leggo, McLean, Oakley, Ziegler. Class III.—Carrique, A. M. Clark, D. Clark, Cleary, Cunningham, Eidt, Ferguson, Henderson, Ireland, Kerr, Killmer, Martin, McLaughlin, Rose, Smith, Stirton, Swann, Willmott, Wood.

Dental Pathology—Class II.—Brown, Hipple, Killmer. Class III.—Carrique, A. M. Clark, D. Clark, Cleary, Cunningham, Eidt, Ferguson, Henderson, Ireland, Kerr, Leggo, Martin, McLaughlin, McLean, Oakley, Rose, Smith, Stirton, Swann, Willmott, Wood, Ziegler.

Dental Histology—Class I.—Cunningham, Hipple, Ziegler. Class II.—A. M. Clark. Class III.—Brown, Carrique, D. Clark, Cleary, Eidt, Ferguson, Henderson, Ireland, Kerr, Killmer, Leggo, Martin, McLaughlin, McLean, Oakley, Rose, Smith, Stirton, Swann, Willmott, Wood.

Medicine and Surgery applied to Dentistry—Class I.—D. Clark, Cunningham, Henderson, Hipple, Oakley, Smith, Swann. Class II.—A. M. Clark, Cleary, Kerr, Killmer, Leggo, McLaughlin, Willmott, Wood, Ziegler. Class III.—Brown, Carrique, Eidt, Ferguson, Ireland, Martin, McLean, Rose, Stirton.

Dental Materia Medica and Therapeutics—Class I.—Hipple, Killmer. Class II.—McLean, Willmott. Class III.—Brown, Carrique, A. M. Clark, Cleary, Cunningham, Eidt, Ferguson, Henderson, Ireland, Kerr, Leggo, Martin, McLaughlin, Oakley, Rose, Smith, Stirton, Swann, Wood, Ziegler.

Anatomy—Class I.—Brown, D. Clark, Hipple, Killmer. Class II.—Leggo, Wood. Class III.—Carrique, A. M. Clark, Cleary, Cunningham, Eidt, Ferguson, Henderson, Ireland, Kerr, Martin, McLaughlin, McLean, Oakley, Rose, Smith, Stirton, Swann, Willmott, Ziegler.

Physiology—Class I.—D. Clark, Hipple, Killmer, McLean, Oakley, Smith, Ziegler. Class II.—A. M. Clark, Henderson, Stirton, Willmott, Wood. Class III.—Brown, Carrique, Cleary, Cunningham, Eidt, Ferguson, Ireland, Kerr, Leggo, Martin, McLaughlin, Rose, Swann.

Chemistry—Class I.—Hipple, Leggo, McLaughlin, Oakley, Smith. Class II.—A. M. Clark, D. Clark, Cleary, Eidt, Henderson, Kerr, Killmer, Rose, Swann, Willmott. Class III.—Brown, Carrique, Cunningham, Ferguson, Ireland, Martin, McLean, Stirton, Wood, Ziegler.

MATERIA MEDICA AND THERAPEUTICS.

PASS AND HONORS.

NOTE.—Candidates for Honors will take the whole paper, and Pass Candidates only those questions marked with an asterisk.

Examiner—R. M. Fisher, M.B., L.D.S.

- *1—What do you understand by the physiological and therapeutical action of a drug? Mention the different ways by which medicines may be administered other than by the mouth.
- *2—Opium, the order of plants to which it belongs. Give its physical and therapeutical action. Ordinary dose. What conditions of the system would modify its action?
- *3—Give the therapeutical action of the drugs as a class, in the following: Antipyretics, Expectorants, Antiseptics, Anæsthetics, Silogogues, Astringents. Name two or more drugs in each class.
- 4—Write a prescription for a three ounce mixture, having Astringent, Soporific and Antiseptic properties, and write the following directions in Latin: two teaspoons full three times a day before meals.
- 5—What is the therapeutical action of a warm moist cataplasm, when applied to an inflamed part? How do you explain the fact that the application of either heat or cold is capable of relieving the pain occurring in acute inflammation?
- *6—What is the ordinary dose for an adult of Morphia, Strychnia, Magnesia, sulph, Pot. Bromide, Tr. Aconitia, Liq. Arsenicalis?
- 7—How do Tonics prove curative? When are they indicated, when contraindicated? Give examples of each having vegetable, animal, and mineral origin.

PATHOLOGY.

PASS AND HONORS.

Examiner—R. M. Fisher, M.B., L.D.S.

- *1—Describe minutely the pathological changes which the tissues undergo in Acute Alveolar Abscess, beginning with an exposed pulp, and terminating in spontaneous evacuation.
- *2—Give pathology of caries of bone. In what respect does it differ from dental caries?
- *3—Differentiate between caries, and necrosis.
- 4—Describe minutely the reparative process in bone.
- 5—Name the different varieties of cancer. Describe, and show by diagram the microscopic appearance of Epithelioma.

OPERATIVE DENTISTRY.

PASS AND HONORS.

Examiner—F. G. Roberts, D.D.S.

- *1—What is sensitive dentine?
What remedies would you use to obtund the sensitivity? Explain their supposed action.
- *2—Name the causes of alveolar abscess.
Give method of treatment (a) with fistulous opening; (b) without fistulous opening.
- *3—(a) Explain your method of root preparation prior to attaching a Richmond pivot.
(b) The teeth applicable for pivoting.
(c) Method of making Richmond pivot, material used, and quality of same.
- *4—Explain your method of operating in a tooth with recently exposed pulp. Fill tooth permanently with gold.
- 5—Name the different causes of Periodontitis. Give your line of treatment of Periodontitis (1) locally (2) constitutionally.
(a) In tooth with open canals.
(b) In tooth with canals filled with Zinc Chloride.
- 6—(a) Explain the action of As_2O_3 on the dental pulp.
(b) Give arguments for and against the absorption theory.
(c) Would you use As_2O_3 as an obtunder of sensitive dentine, and why?
(d) Before applying As_2O_3 why should the pulp be nearly or wholly exposed?

DENTAL PROSTHETICS.

PASS AND HONORS.

Examiner—G. Adams Swann.

- *1—Describe in detail the preparation of the mouth for the insertion of a full or partial denture, stating when, and what teeth and roots you would extract.
- *2—Describe the process of constructing a denture on gold and vulcanite combined.
- *3—What materials are used for taking impressions of the mouth? Which do you consider the best for any given case? Describe the manner of taking an impression of the mouth for full or partial denture.
- *4—Explain the principle on which the use of a vacuum chamber in artificial dentures is based. Defend its use, and define its proper size, shape, and location.
- *5—Describe the construction of a mechanical appliance for regulating a contracted arch with the cuspid crowded out of place. Explain the principles on which it works.
- 6—Name the four basal temperaments, and describe (a) the general physical appearance of a person of each; (b) the particular characteristics of the teeth of a person of each.
- 7—Describe the construction of a piece of "bridgework," replacing the first and second bicuspid.
- 8—What is an obturator? For what class of defects is it best applicable, and what muscles must be specially trained to render them most useful?

PRINCIPLES AND PRACTICE OF MEDICINE AND SURGERY AS APPLIED TO DENTISTRY.

PASS AND HONORS.

Examiner—L. Tesky, M.D., C.M., M.R.C.S. Eng.

- *1—Mention the principles upon which you treat both generally and locally Acute inflammations.
- *2—How would you diagnose and treat a fracture of the Condyl of the lower jaw.
- *3—Describe an Epithelioma of the lip, and give the probable Clinical history of an untreated case up to death.
- *4—Give the causes and treatment of an Abscess of the Antrum.
- *5—Describe the various Syphilitic lesions which may appear in the mouth.
- 6—Mention the causes of Necrosis of bone, and describe the process of the separation of the sequestrum.

- 7—In a case of cleft palate how would you choose between treatment by Surgical operation, and a Mechanical appliance?

DENTAL HISTOLOGY.

PASS AND HONORS.

Examiner—L. Teskey, M.D., C.M., M.R.C.S. Eng.

- *1—Describe the structure of the Enamel Organ.
- *2—Describe a dental tubule.
- *3—What is Nasmyth's Membrane, and from what is it developed?
- 4—State the Anatomical relation of the pulp to the Peridontal Membrane, and describe the structure of each.
- *5—What provisions are made for the maintenance of the nourishment of both Enamel and Dentine?
- 6—Describe the development of the common Enamel Organ, and the manner in which the special Enamel Organs are provided for all of the permanent teeth.

ANATOMY.

PASS AND HONORS.

Examiner—Geo. M. Peters, M.B.

- *1—Describe the antrum of Highmore (maxillary Sinus).
- *2—Describe fully, and give the nervous supply of the muscles which elevate the lower jaw.
- *3—Describe the temporo-maxillary articulation.
- *4—Trace the course of the blood through a complete circulatory revolution, explaining briefly the mechanism of the valves of the heart. What are the peculiarities of the portal circulation?
- 5—Give the distribution of the superior maxillary, or second division of the fifth cranial nerve.

PHYSIOLOGY.

PASS AND HONORS.

Examiner—W. H. B. Aikins, M.D., L.R.C.P. Lond.

- *1—Give the order of Eruption of the Temporary, and Permanent Teeth.
- *2—Give the composition and uses of Saliva, Gastric-juice, and Bile.
- *3—Describe the changes which the Air and Blood undergo in Respiration.
- *4—Describe the mechanism of Deglutition and Defæcation.
- 5—Give the structure, and connections of the Valves of the Heart. What are their functions?
- 6—Give the immediate and remote effects of Division of the Trifacial nerve.

CHEMISTRY.

PASS AND HONORS.

Examiner—W. Theophilus Stuart, M.B.

- *1—What is meant by "polarization of the plate" in a galvanic cell, and what means are employed to prevent it?
- *2—Define the following terms: conduction and convection of heat, latent heat, refraction of light, magnetic poles.
- *3—Describe the preparation, properties, and uses of hydrogen dioxide.
- *4—Give another name for "laughing gas." Describe its preparation and properties.
- *5—Give the structure of flame, and explain the difference between an oxidizing and a reducing flame.
- *6—Give the preparation and properties of chloroform. How may its purity be determined?
- 7—Give the formula of cellulose. From what is it obtained? How does the celluloid differ from it, and for what purpose is the latter used in dentistry?
- 8—Give qualitative tests for the normal constituents of saliva.

Editorial.

Death of Dr. C. S. Chittenden.

The profession of Canada, and of Ontario especially, has lost one of its most useful and representative men, one of its most earnest and honest workers. This journal has lost one of the very few men who had the courage to welcome and assist the first attempt to establish a Dental Journal in Canada, and who remained true as steel to the day of his death. Any one who knew Dr. Chittenden must feel his death as a personal loss. He brought the sunshine of a genial nature, with sound practical sense, into every gathering of the profession, and while holding strong convictions of the evil of quackery, he was the first man to help a quack to become honest.

Many a licentiate owes his determination to do his best, to the kind advice of Dr. Chittenden. Hamilton has thousands of living monuments to his operative skill. We have a melancholy pleasure in enshrining his portrait in our pages.

The Ladies: God Bless Them!

At last the Canadian profession have embraced the ladies in their ranks, and several fair aspirants are spoiling their dresses and soiling their fingers in the elementary work in the laboratory. For over ten years Mrs. Casgrain, the clever young wife of a member of the Quebec Board, has been a practical sharer in the office and laboratory work of her husband, and has attained considerable skill. Recently Miss Annie Grant Hill has been indentured to Dr. C. H. Wells, of Huntingdon, and we learn that several others seriously contemplate entering our ranks. Nobody but a crusty bachelor or a hen-pecked husband could object to having the arms of a fair female dentist around his neck. It ought to be as effectively soothing as nitrous oxide. It may become the fashionable anæsthetic. However, every manly dentist can only toast them in the traditional way: "The Ladies! God bless them!" As mothers, they were our guardian angels; as wives, they are by far the best part of us; as daughters and sisters, they surround our lives with happiness; as sweethearts, who can forget or forgive some of them? as mothers-in-law,—Heaven save us! As dentists,—why not?

Life Insurance for Dentists.

Within the last ten years several deaths in our profession have come home to us in a special manner, showing the importance of making early provision for one's family by means of life insurance. No less than seven widows would have been left almost penniless but for this blessing, and to-day there are scores of men in our ranks who would despair of the future of their families, were it not for the consciousness that their lives are insured in a good company. In no possible way can a man better protect his family against reverses in his life, as well as want after his death. Life policies are protected by law from seizure, if made for the benefit of wife and children. Everybody is supposed in this enlightened age to know and appreciate the value of life insurance, but not everybody realizes its value as an immediate investment. As one instance in our own case. A life policy of \$10,000 in one of the best companies in the world—the Canada Life—in addition to the security, realized as profits the sum of \$500 in five years. A cheque for this amount was handed to us.

Young men beginning life should insure it, as a personal investment, if they do not intend to marry. For instance, for an assurance of \$1,000 at the age of twenty-four, with profits, on the endowment plan, payment is made to the assurer in fifteen years after, for an annual premium of \$62.70. For life assurance, with profits, for \$1,000, \$18.30 a year for life, or ten annual payments of \$35.20. At the age of forty, for \$1,000 for life, \$30.50 for life, or \$57.30 in ten payments. Endowment plan, payable in ten years or at death, with profits, \$104.50.

Dentists of the Past.

The younger dentists of to-day, who have received a thorough education in the principles of dental science at college, and have supplemented that theoretical education by a couple of years' practice in the well-furnished office of some regular practitioner, can hardly realize the difficulties which beset the path of the student in pursuit of dental knowledge, forty or fifty years ago. Now and then, when reading of the death of some aged practitioner, or listening to the reminiscences of a living one, our thoughts are carried back to the early days of the profession, and we see those men, many of them without any college education and with scarcely any books, trying to acquire a practical knowledge of dentistry, with the assistance of a preceptor who had "learned his trade" or "picked it up" no one knew how. When we consider how little was generally known of even the

fundamental principles of dental science in those days, and how few of the instruments which we look upon as indispensable were in use at that time, we cannot help admiring their perseverance, and wondering at the degree of proficiency to which many of them attained. Many were the innovations to which they were obliged to submit, and many were the new methods which they were compelled to adopt. The use of cohesive gold and plastic filling materials, together with the introduction of the dental engine and rubber dam, made wonderful changes in the art of filling teeth, while the introduction of vulcanite practically revolutionized the mechanical department of dentistry. It is true all these, saving, perhaps, the last, were steps in advance, and as such were welcomed by the profession, but they were innovations nevertheless, and so made constant demands upon the patience and skill of those who made use of them. In view of these facts do we give the generation of dentists who have preceded us, and the older practitioners that are still living, all the credit that is due them for their work? We fear not. Taking into consideration the circumstances by which they were surrounded, they certainly deserve much credit for the excellent services they rendered to the people and to the profession, and we should not be slow in acknowledging our appreciation of them. A. H. H.

Examinations.

As a rule, young men about to be examined are nervous and unconfident. An examination is never trivial even to the best prepared, and the best men are often the most nervous. We have seen aspirants march up to the cannon's mouth of an examination as confident as old soldiers, in spite of the warning that their ignorance was amazing. Young men usually discover near the end of the lectures how little they knew when they started, but it is not the same in clinical work. When a beginner finds he can fairly fill a difficult cavity with gold, he is apt to imagine that his education in that direction is complete. It is only when active practice brings him exceptional pathological cases, that he finds he has not finished his studentship. But any examiner is well aware that the boys who appear in fear and trembling, with loss of appetite and flesh, and what might be called "the student's diarrhœa," deserve kindly sympathy; and as a rule they get it, for every examiner ought to remember he was a boy and a student once. But occasionally an over-confident youth is found, who wishes it to appear that study to him is no weariness of the flesh; that the examination papers are not a matter of thought, but merely of penmanship; that large amplification of his personal opinions based upon a fertile imagination, must weigh with the examiners quite as much as the result of

serious reflection and practice. He affects to pity the hard-workers, and if he has worked hard he generally denies it. If he should pass, his after remarks are not those of delighted gratitude, but of assumed contempt, and because he may have found questions easy to answer, he imagines that no harder could be asked.

The Ontario Board has an advantage over those of Quebec, Manitoba, and British Columbia. It has the numerical strength to possess a valuable teaching body to fall back upon, and it can treat students entirely upon the merit of their study and work at the school. The others are only examining and not teaching bodies, and unless their system was more elastic everybody could be plucked. We are doing very well all around as we are, but we should look forward to the removal of Provincial disabilities, and some day have a recognized Dominion degree—the D.D.S. of the University of Toronto, for instance,—which would be a professional passport to practice anywhere in the great Dominion.

Being on the Board.

It is an amusing superstition which still haunts the minds of many in the profession, that the members of the Board of Examiners, as well as the college professors, have each a big “bonanza” in their appointments. There are sensible men who know better, and who do not envy the seven workers who for a paltry fee per day, which any city operator could earn in an hour, endure the monotony of examining students; and who not only possibly receive the self-complacent contempt of some of the men they pass, but the positive and eternal ill-will of those they pluck. An experience of twenty-years’ constant laboring in this direction, as well as in the organization of the politics of the profession, qualifies us to say, that the meetings of the Board cannot cost each member less than from one to three hundred dollars a year, for which they receive the munificent fee of five dollars a day for two or three days. The legal annual meetings are by no means the only drain upon a member’s time. Since 1867, the services rendered to the profession by the Ontario Board have been incalculably valuable. Of course this does not exclude scores of worthy men who had no desire to be on the Board. Every man who interested himself in the objects of the Association was directly a helper. But the official members of the Boards, collectively and individually, have done and are doing important work for the profession, much against their own selfish interests, if they have any.

Even in Quebec, owing to peculiar difficulties, there were in addition to the regular meetings, about twenty important unofficial others, not one of

which cost any licentiate but the members a dollar. Repeatedly, members of the Board had to leave their private practice in Montreal, and battle against the intrigues of laymen and legislators determined to destroy important provisions of the Act, protective to the very grumblers. From January to December a constant watch had to be kept on the official Gazette for applications for private bills. Imagine such a case as actually succeeded at the last session of the model Quebec legislature. A citizen applied for a private bill to enable one of his sons to enter the profession without matriculating, and condescended to give no other excuse than "for weighty reasons,"—consisting in the avowed ignorance of the said son in the branches required, and the threatened political opposition to the Premier of his extensive family ! Yet we have heard some of the juvenile wiscacres of the profession declare, that had they been on the Board the Government would have shaken in its moccasins.

Being on the Board is not all that inexperienced fancy paints it. To many it would no doubt afford a splendid opportunity to realize the magnitude of their own conceit, and the fallibility of their most positive and most personal convictions. It not only means responsibility every day in the year, but a lot of real hard work and the loss of a lot of time and patience. Anyone not prepared to face the music, and to give this time and thought, has no business to accept the position. The profession have a right to expect diligence and a sense of duty, and sometimes imagine they have a right to expect perfection.

Subscriptions.

Professional men, as a rule, need the money they earn, and have a good grievance when their patients delay payment. Every professional man must know that a dental journal in Canada cannot for a long time to come be made a paying investment, unless it becomes the advertising organ of one dealer, to the exclusion, by exorbitant rates, of rivals. This journal, like its predecessor, is perfectly independent in its management of any advertiser, or any corporation. If it is the organ of any special interest, it is that of the Canadian profession as a body.

But it is hardly fair to ask the publisher to pay the printer out of his own pocket, and then pay the publisher at the end of the year. The present issue is a specimen of what the publisher is willing to risk, in the way of illustrations, etc., if the profession act fairly in the matter of support. So far, there has been a splendid success ; but a very large number have not yet practised the golden rule of doing to a publisher as they would like

their patients to do to them. The amount is such a trifle that it is all the more likely to be overlooked, but we beg our subscribers to attend to it at once, and to send their dollar to DOMINION DENTAL JOURNAL, P. O. Box 298, Toronto, Ont.

Notices.

OUR old friend, Dr. W. R. Patton, formerly of Quebec city, now of Cologne, Germany, will act as Corresponding Foreign Editor.

WE are obliged, for want of space, to defer until the next number reviews of Dr. Geo. Cunningham's interesting pamphlet on "The treatment of pulpless teeth," as well as Mr. Henry Sewil's brochure on "Dental caries."

TRANSACTIONS OF THE NEW YORK ODONTOLOGICAL SOCIETY, 1888.—^f It would require a volume bigger than this one of 174 pages, to tell the story of our personal and professional obligations for over fifteen years to the founders and members of the Odontological Society. The early inspiration of meeting the men who were animated with a desire to get at truth, no matter what friend is hurt or what foe is helped, does not die out in a man's life. We venture to believe that this Society has been a prominent factor in the general education of the profession, through the fulness of its reports in the *Cosmos*, and the publication of its transactions.

Miscellaneous.

"THE teeth," says Homer, "are small barriers, placed in the mouth by nature, to prevent the tongue from going astray, or the abuse of words."

"WHOEVER considers the study of anatomy, I believe will never be an atheist. The frame of man's body, and coherence of his parts, being so strange and paradoxical, that I hold it to be the greatest miracle of nature."
—*Lord Herbert.*

A STUDENT in Paris, after passing three years in the Latin quarter, wrote to his father as follows:— "I have made up my mind to set to work, dear father; therefore, I should like to know whether it was law or medicine that I came to Paris to study?"

IN certain parts of India the teeth were once so esteemed that they were offered as sacrifices to the gods, and the ancients, seeing that the teeth remained perfect after the body had been long entombed, supposed they assisted in the final resurrection.

ALBUCASSIS was the first who asserted that the teeth could be transplanted. Galen said the teeth were real bones. Bartholine mentions a case in which a single tooth occupied the whole circle of the jaw. Genga relates a case of the growth of an *iron* tooth.

PROFESSIONAL JEALOUSY.—Two street-sweepers were heard pronouncing on the merits of a deceased brother of the broom. One of them said he was a good workman. The other pronounced him "capital at the thick, but nothing at all at the thin." The latter, being, it seems, the department which exerts the greatest agility of hand.

JOUBERT reported a case in which a lady lost all of her teeth, and at the age of 70 twenty new teeth grew in her jaws. Sauvart, Eustachie, and Duffay relate similar cases. Gehler saw a case in which an eye-tooth had been renewed three times. Hunter relates a case of the appearance of teeth at the age of 70. Mr. E. Parmly, of New York, recorded the case of an adult who never had any teeth, yet the alveolar processes were developed so as to fill up the vacancy in the mouth, which would have manifested itself had the teeth been lost by disease or extracted.

DR. W. D. DWINELLE, of New York, in 1855, in the *American Journal of Dental Science*, published the system of cap crown and so-called bridge work, which he claims was his invention.—*Archives* (St. Louis, Mo.)

Upon referring to the article in question, page 278, April 1855, the doctor's claim seems fairly established. It is an elaborate treatise. Referring to cases where there is nothing but the root of the tooth to build upon, the application of an artificial cusp, with gold plate attachment, and other methods, are suggested.—ED. D.D.J.

HOME-MADE capsicum plaster may be prepared as follows :

R Bacca capsici, ℥j.
Pulv. cantharides, ℥ij.
Sp. vini rects., ℥x.

Macerate for 48 hours, then percolate, adding sufficient rectified spirits to make the product measure ℥x.

Soak wash-leather in this tincture until well saturated, then take it out and dry in the open air. Cut in pieces for use.—*Dental Record* (London)

A GEM OF THOUGHT.

"Not myself, but the truth in life I have spoken ;
Not myself, but the seed in life I have sown,
Shall pass on to ages, all about me forgotten,
Save the truth I have spoken, the things I have done."



Chas. F. F. Westley, M.D. L.D.S.

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Dr. Chas. Frederic Ferdinand Trestler.

Dr. C. F. F. Trestler, aged 57 years, studied in the Montreal College as well as under special professors.

He first studied medicine under Dr. J. B. C. Trestler, his father, of whom more will be said later, and then under J. G. Bibaud, M.D., Professor of Anatomy in Victoria University. He was admitted to the practice of medicine in 1852. He followed this profession for a certain time, then went to New York to study dentistry under Professor Barlow. After two years of hard work, he came back to Montreal in 1857, where he has followed his profession ever since.

In 1857. Dentistry was in its infancy in Canada, and it was practised with very little ability and success, but it was from this date that Dr. Trestler with other clever confrères, gave a new impetus to it, by devoting himself particularly to this difficult specialty, by means of his perfect knowledge of anatomy and of physiology.

Dr. Trestler is the only Surgeon Dentist in the District of Montreal, who has been admitted to the practice of medicine. A fact worthy of notice is that although Dr. Trestler has administered chloroform and laughing gas thousands of times to his patients during the last thirty years, he has never had a single accident.

Dr Trestler was one of the founders of the Dental Association of Quebec.

He had for grandfather and father, men of whom M. Bibaud spoke in his "Historical Dictionary," in the following terms :

"Trestler (J. B. Curtis) M.D., of the Royal Society of Medicine of Edinburgh, honorary member of the Polytechnic Institute, is the son of J. J. Trestler, M.P. for the County of Vaudreuil,—one of the first Canadians who graduated at the School of Edinburgh, where he studied with the great Anatomist Stephenson, whom he succeeded as physician of the gentlemen of the Seminary.

"As Commissioner for the care of the Insane, he was the principal promoter of a special hospital or Asylum for this class of suffering humanity, and was its first Doctor before its removal to Beauport."

"There is a thesis dedicated to the Hon. M. E. G. Chartier, of Lotbiniere, his godfather."

During the Dental Convention of Americans and Canadians at Montreal, Dr. Trestler, the President, read the address of welcome.

Original Communications.

Dental Caries.

By HENRY SEWILL, M.R.C.S. AND L.D.S. ENG.

The only remote or predisposing causes of caries of which the existence has been demonstrated, and of which the action is demonstrable, are those named in my papers, namely, inherent structural defects in enamel, vitiation of the buccal secretions, and crowding and irregularity of the teeth. The statement that enamel, through causes acting from within a tooth, can undergo a process of softening or deterioration—a kind of degeneration—rendering it less able to withstand attacks of caries, is pure hypothesis, resting on very insufficient foundation ; and it is besides entirely unnecessary, all the phenomena being accounted for without its introduction. If any one really believed that enamel were capable of physiological, and therefore of pathological action, he would never fill a simple cavity of decay. Is it to be believed that a tissue so highly organized as the hypothesis in

question supposes, would passively tolerate the presence of a foreign body like a stopping wedged into its substance? One consideration like this is alone almost enough, to show the falsity of the views upon which you have asked my opinion; but there are many more equally cogent. The amount of organic matter in enamel is so minute as to be indistinguishable by the microscope, and we are justified in affirming that enamel is devoid of those tissue elements without which physiological action is impossible. An American observer states that he has stained enamel with chloride of gold, but if this observation were correct—as to which there are grave doubts—the organic matter must be in a state of almost inconceivable tenuity. You will see from my book that Mr. Charters White, one of the most distinguished living dental histologists, agrees with me that there is probably some error in the observation. But if it were true, can we imagine the passage to and fro of nutritive and effete material via the dental fibrils to the surface of the enamel; and can we imagine their assimilation and rejection by a quartz-like inert mass such as composes almost the entire bulk of enamel? And furthermore, if in some systemic states teeth were to undergo degeneration, owing to abstraction of their solid constituents through the vascular system, surely the morbid process would begin, if not always, at least very often in the surfaces nearest the vessels—in the cementum and the dentine forming the walls of the pulp cavity? Does any one allege that he has observed such a phenomenon? and can any one produce a single specimen of enamel in process of softening or disintegration, displaying any appearance not equally visible in a carious dead tooth. Indeed, with the exception of pain, the single subjective symptom of caries, all the phenomena of this malady, whether as regards appearances visible to the naked eye or disclosed by the microscope, are to be observed not only in dead human teeth replaced in the mouth as artificial substitutes, but in blocks of ivory used for the same purpose. And the remote as well as direct causes of decay in these dead substances when worn in the mouth, are precisely the same as govern the onset of caries in living teeth—teeth with living pulps and living periosteum. Dead teeth and ivory blocks are under similar conditions neither more nor less liable to decay in the mouth than their neighbors implanted in the alveoli. Some few years ago, before the general use of vulcanite, artificial teeth were much more frequently constructed of gold plates with human teeth mounted upon them, and it was a fact of common observation—one which I was able fully to verify—that the durability of this kind of work varied much in different individuals and under changing circumstances in the same individual. Every dentist recognized that their durability depended very largely upon the quality of the teeth and blocks employed; if these were of the most solid structure

they lasted much longer than if inherently weak. Everyone recognized also that their durability depended, secondly, on the health and personal habits of the wearer. In a mouth habitually neglected and where the frames were allowed to remain for long periods coated with decomposing debris, the dead teeth and ivory were speedily softened and destroyed; whilst on the other hand where the mouth and teeth were kept scrupulously clean the beginning of decay was proportionately less frequent and its progress in like degree less rapid. A combination of bad health with neglect, giving rise to extreme vitiation of the buccal secretions, was with certainty accompanied by destruction of the artificial teeth. In short it is amply proved, that disturbances of the general health exercise the same indirect influence upon ivory blocks worn in the mouth, as upon living teeth, and the effects are traceable onwards through the same agencies, namely, putrefaction and fermentation of organic matter attended by formation of acids and development of micro-organisms in the vicinity and on the surfaces of the teeth. This is what happens in the cases of pregnancy about which you write. It is only a minority of women whose teeth suffer during that period, and in these there is almost invariably present dyspepsia with local conditions such as I have just referred to.

There has probably been more nonsense written on the subject of dental caries than on any other topic of the sort, and I have no doubt that the same kind of writing will go on in the United States, so long as dental societies and dental journals refrain from holding up pseudo-scientific pretenders to the ridicule they deserve. We feel a solidarity in this country with our professional brethren across the Atlantic, and we take deep interest in all that concerns the progress of the profession in the great Republic. But beyond that, I do not think that the production in America of sham scientific dental literature, whether in the form of papers or of text books and manuals for students will affect us injuriously. Our students are not likely to go astray in these matters. They are all obliged before commencing their special studies to pass an examination in general education, and having passed that examination they are not likely to pay much attention to authors, whose writings glaringly make manifest not only their ignorance of the meaning of the scientific terms which they glibly use, but their want of acquaintance with the rules of language and grammar, without which the simplest scientific proposition cannot be clearly expressed. It was partly to expose the worthlessness of the productions of writers of this class that I composed the papers to which you so kindly refer; and I am quite satisfied to know that they have not been altogether without effect in checking an evil from which we on this side of the Atlantic have been by no means exempt.

The Relation of the Teeth to the General Health.

By R. E. SPARKS, D.D.S., Kingston, Ont.

Teeth are among the most peculiar and at the same time most important organs of the animal economy. Anatomists are at a loss where to place them. Some number them among the bones; others tell us that there are so many bones and so many teeth in the animal described.

They resemble bone in composition and structure more than they do any other tissue, but in many other respects they widely differ.

Teeth are of all sizes and shapes, from the villiform teeth of the perch, which are so numerous and closely aggregated as to resemble the plush of velvet, to the tusk of the elephant, which sometimes attains the length of 9 feet and a weight of 150 lbs., or to one of his grinders which has a grinding surface of from 36 to 45 square inches. Most mammalia have teeth formed for special uses—incisors for cutting, canines for tearing, molars for grinding.

Perhaps in no other way is the supreme wisdom of the great Creator more beautifully displayed than in the formation of the teeth.

We see in herbivora, particularly those feeding upon the coarser kinds of herbage, as the elephant, horse, etc., etc., large grinders having plates of enamel running through the substance of the tooth. As the tooth is worn away by mastication, the dentine wearing faster than the enamel gives the tooth a very rough grinding surface. We see in the incisors of rodents, as rat, beaver, squirrel, etc., the enamel placed upon the front surface in two layers. The outer layer is more dense than the inner layer, and that is more dense than the dentine forming the body of the tooth.

By constant use these teeth are worn away; the body more rapidly than the inner layer of enamel and that in turn more rapidly than the outer plate, leaving the tooth shaped and edged like a chisel.

Carnivora have long canines in both jaws which serve the double purpose of firmly holding their prey, and for tearing flesh, while the molars instead of having flat, grinding surfaces are blade-like, are covered with enamel and work upon each other like scissors. This affords great power to masticate hard and tough food.

In the case of fish, where the chief object of the teeth is to prevent the escape of prey, they are generally sharp and slender and point backwards.

Mixed feeders, and under this head man appears, the mouth is provided with incisors, canines and molars. In this class the canines are not nearly so large as those of carnivora.

Teeth are generally attached to the jaws by means of a fang or fangs fitting a socket or sockets in the bone. In the case of fish, however, the teeth are attached to a hard, tough membrane; sometimes merely by an expansion of the base of the tooth; sometimes by means of ligaments.

Various indeed are the times and ways of development of teeth. Some animals come into life with teeth fully developed and erupted. The crocodile leaves the shell with as many teeth as it is possessed of at any period of its existence. It sheds and reproduces its teeth at intervals during its whole life, and each set is larger than the last in proportion to the increase in size of the body of the animal. Most animals, however, erupt their teeth after birth. Man, and some quadrupeds, have a set of teeth to serve during infancy, which are replaced by a set greater in size and number than the former, occupying the increased size of the jaws. These are calculated to serve during the life of the animal.

Many other animals have the reproductive process going on in connection with the teeth throughout life. The majority of fish shed and reproduce their teeth almost constantly. The hard membrane covering the jaws, from which the teeth are developed, steadily moves forward, and, as each row reaches the edge they are discharged. The full number is kept up by new teeth being developed behind the last row. These in their turn ultimately take their place in the front in the onward march.

Reptiles shed and reproduce their teeth, but generally from bony sockets. Each individual tooth is replaced directly by a new one. The crocodile has sometimes a succession of teeth being developed in the same socket at the same time. The elephant sheds and renews its molars about six times during its long life. Other teeth are reproduced by a persistent pulp which is the matrix at the bottom of the socket from which the tooth was originally formed, and which continues to supply new tooth structure, pushing the tooth forward as the exposed end becomes worn away.

The incisors of rodents are thus provided; also the molars of most herbivora.

Man is not so provided. By the time a child has attained an age at which it partakes of food requiring mastication it has a set of teeth for the purpose. By the time the jaws are enlarged sufficiently to accommodate them the permanent teeth begin to appear; and when the child becomes developed into a man we find him with a well enamelled set of thirty-two teeth.

Whether or not the dentition of man has undergone any change since the time of our long-lived forefathers I am not prepared to say. I have only to deal with him as we find him in his present state. By the time he has become possessed of his permanent set of teeth one-fourth at least of

his allotted time is spent. This, with the extent to which he assists mastication by the manner in which he prepares his food, points to the fact that under ordinary circumstances they should serve his purpose during the remainder of his life. It is too frequently the case, however, that they do not. Rarely do we find a person attaining old age without having lost more or less teeth, and many have barely completed dentition before it is necessary to remove the entire set. Why should this be? Surely the general health must in some way, to some extent, be responsible.

How often we see a delicate child erupt a set of teeth of extremely poor quality. How often we have brought under our notice cases of temporary suspension of the process of calcification of the teeth, by an attack of measles, scarlet fever, or some other of the infantile diseases. In such cases we can see the stage of development at which normal calcification again took place, indicating a restoration to health of the child. Who has not seen a set of good teeth almost melt away after an attack of typhoid fever?

Not only does the state of the general health influence the condition of the teeth, but the condition of the teeth, to a very great extent, influences the general health.

Without taking into consideration teeth of special function as those used as weapons of defense and offense, those used to prevent the escape of prey, the gnawing teeth of rodents, or the special functions of teeth as organs of enunciation, objects of beauty, etc., we will consider the general office of the organs, taking those of man as being most closely connected with our subject.

They are the prime organs of mastication. In the process of digestion the food which is taken into the stomach undergoes chemical change, by which it is prepared for being converted into bone, muscle, nerve, etc.

The chemist, when he wishes to dissolve a solid substance, places it in a mortar, and with a pestle divides and subdivides it that the solvent may attack it upon all sides at once. This office is performed in the process of digestion by the teeth. If the food passes into the stomach without being thus finely divided, it requires more time and a greater quantity of gastric juice to dissolve it. If that condition continue for some time, the secreting organs become weakened and the food improperly digested as a consequence. Then follow the distressing symptoms of that bane of the present generation—dyspepsia. If this be not speedily remedied we have general debility, owing to an insufficient quantity of properly prepared material to supply the waste of tissue continually going on.

The amount of work which the teeth are calculated to do is enormous. The quantity of food a man eats at one meal does not seem much, but the

old Scotch saying applies here, "Mony a little mak a mickle." M. Sawyer, an eminent cook, enters into a calculation of how much food a man of seventy years has eaten since he was ten years old. He causes to pass before the mind's eye 30 oxen, 200 sheep, 100 calves, 200 lambs, 50 pigs, 1,200 fowls, 300 turkeys, 260 pigeons, 120 turbot, 140 salmon, 30,000 oysters, $2\frac{3}{4}$ tons of vegetables, $4\frac{1}{2}$ tons of bread, 245 lbs of butter, 24,000 eggs, besides sweatmeats, fruit, etc. This all points to the importance of retaining the teeth as long as possible. How this may best be done is itself a subject for an exhaustive treatise, and does not come within the province of this paper.

But teeth may be retained too long. Their retention as well as their loss may prove a source of injury to the general health. A few cases in practice will serve to illustrate this point.

A young doctor on his way home from college called upon a lady friend and found her prostrate with general paralysis, for which she had for some time been unsuccessfully treated. Being a friend of the family, his opinion was asked. He incidentally had heard that bad teeth would cause it, and ventured to examine hers. He recommended the removal of an ulcerated one. This was submitted to, and upon his return to the house five hours after, his patient was up and prepared his tea for him.

A patient of mine called upon me complaining of a feeling of general debility, a heavy, numb feeling in the side, involuntary dropping of the arm to the side, sudden temporary prostration. Upon examination, the lower right molar was found to be sore to the touch. In fact she had already traced the source of trouble to that tooth and had come to have it extracted. The operation was performed, general health returned, and all symptoms of paralysis disappeared.

A lawyer of Peterborough had an obstinate discharge from one or both ears. Fruitless efforts were made to dry it up. One day while laughing heartily in the presence of a physician who had been studying the case, it was noticed by the physician that his teeth were in a very crowded condition. He recommended extraction of the wisdom teeth. It was submitted to, and the discharge ceased.

A young lady of Montreal suffered terrible agony for six months with neuralgia. She was treated by the most skillful physicians without benefit. Her mind began to weaken, and as insanity was in the family it was feared she would soon be a subject for the asylum. A dentist was consulted. He recommended the removal of a lower second molar to allow the eruption of a wisdom tooth. Relief and restoration almost immediately followed the operation.

A young lady called at my office to have upper jaw prepared for artificial

teeth. I recommended the retention of the six anterior teeth, they being in very good condition. After some time she returned, stating that she suffered intense agony from toothache and facial neuralgia, and insisted upon the removal of the balance of upper teeth. I diagnosed osteo-dentine as the cause of the trouble, and removed them. I split two of the teeth and found nodules of osteo-dentine more or less developed in both. The neuralgia was cured.

Many cases of blindness, deafness, necrosis of bone and other diseases foreign from the seat of trouble, have had their origin in the loss of teeth or their retention in a diseased or overcrowded condition. How to avert or correct these conditions would be solved to a great extent, if the public could be educated to place their families under the care of a dentist as they do under the care of a doctor; but unfortunately the dentist is only consulted after months of suffering, if at all, and methinks the grave might yield up many victims, who might have been spared to the world by a timely consultation of a competent dentist.

Aluminum as a base for Artificial Dentures.

By A. HUGH HIPPLE, D.D.S., Stratford.

Read before the Ontario Dental Society.

The dental profession has been looking for many years and is still looking for a new base upon which to construct artificial dentures. Gold is so expensive as to be beyond the reach of many patients. It is, moreover, somewhat difficult to manipulate, and under even the most favorable circumstances owing to the necessity of swaging it, only an approximate adaptation to the mouth can be obtained. Silver, while cheap enough to be within the reach of all, has the other disadvantage of gold, and besides tarnishes so readily in the presence of sulphur or sulphuretted hydrogen that it should rarely if ever be used for that purpose. Vulcanized India rubber has come to be the almost universal cheap base, and being cheap and requiring only a small amount of skill in its manipulation to produce fair results, the great majority of dentists appear to be perfectly satisfied with it and do not care to look for anything better. The better class of practitioners, however, have been constantly on the lookout for some material to take its place, possessing its advantages without its disadvantages.

Richardson in his *Mechanical Dentistry* says:—"While there are undoubtedly many important uses to which vulcanized india rubber may be applied in the practical department of dentistry, and for which it would

be difficult to find an adequate substitute, yet there are accumulating evidences leading to the conclusion that its total abandonment as a base for artificial dentures, by intelligent and conscientious practitioners everywhere, is an event of the not far distant future."

Of the different substitutes for vulcanite which have been proposed and employed, none to my mind presents so many advantages and so few disadvantages as aluminum, particularly since by the aid of certain simple appliances it can be cast directly upon a plaster model. As it is only within the last few years that the properties of this wonderful metal have been studied and understood, a general description of it, together with an outline sketch of some of its possibilities, may not be out of place.

To begin with, then, aluminum is a silver-white metal which has a fine lustre, and is capable of receiving a bright polish. Although not found free in nature it is yet the most abundant of all metals. It is an essential constituent of more than 200 different minerals, and good compact clay is found upon analysis to contain from 10 to 20 per cent. of the pure metal. One of its most striking peculiarities is its lightness. Its specific gravity is 2.56, so that it is only about one-third as heavy as iron less than one-fourth as heavy as silver, and about one-eighth as heavy as gold. It is very malleable and very ductile. It possesses about the same hardness as silver but is more tenacious. It is one of the best conductors of heat and electricity known, being eight times a better conductor than iron, and almost equal to silver. It differs from silver, however, in resisting entirely the action of sulphur or sulphuretted hydrogen. It melts at a temperature slightly higher than the melting point of zinc and therefore within easy reach. It does not oxidize in air, and is unaffected by water at any temperature. It is unacted upon by vegetable acids, and even strong sulphuric acid is said not to attack it. In fact it is one of the most unalterable of the metals; but may be dissolved in hydrochloric acid. It is tasteless, odorless, and absolutely harmless, and no bad results can possibly follow its use in the mouth.

The abundance of this metal and the necessity for cheap methods of extracting it from its compounds, become evident to us when we consider that a cubic yard of clay weighs about 4000 lbs., and contains from 400 to 900 lbs. of pure aluminum. As \$12.00 per lb. may be considered as the present commercial value of the metal, the total value of the aluminum contained in a single cubic yard of clay amounts to at least \$5,000. It seems almost incredible, but it is a fact nevertheless, that society is willing to pay from \$5,000 to \$10,000 for the purified aluminum contained in a single cubic yard of ordinary clay! Is it any wonder then, in view of the prize which awaits the inventor of a cheap process of reducing aluminum, that nearly every chemist in the land has devoted more or less attention to the

matter, and that, as a recent writer puts it, "nearly everything that is possible has been tried and nearly everything that is impossible has been proposed."

The method of extracting the metal which has been employed in the past is known as Deville's method, and depends upon the action of metallic sodium upon a double chloride of aluminum and sodium. As sodium is an expensive metal, and as it requires more than three pounds of sodium to make a pound of aluminum, this method is necessarily very expensive. Electric methods are also being tried with some success, but what promises to be the most important of all is that of Dr. Netto, of Dresden. The Krupp iron works at Essen, in Germany, are introducing his processes, and state confidently that they will be able to supply ingots of this metal at a cost not much greater than that at which steel bars were produced forty or fifty years ago. If this is true, in view of its abundance and valuable properties, it is not unreasonable to expect to see in the near future this shining white metal taking the place of iron and steel. It is as tenacious as malleable, and as ductile—when soft—as iron, and yet becomes almost as hard as steel when hammered and rolled. Then too, it will not corrode or disappear in rust like those metals. There seems to be no reason why it should not take the place of the iron work of passenger and freight cars, with a two-thirds reduction in weight, and a great saving in wear and tear of rails and track. The great ocean steamers if sheathed with this metal would not only be much lighter and have their tonnage proportionately increased, but their sides would be practically indestructible from the action of the elements. In the construction of bridges the fact of its possessing the maximum of tensile strength and indestructibility, combined with lightness and flexibility, gives it a decided advantage over any other material, while for electrical purposes especially in the case of suspended telegraph wires, all heavy metals will have to give way as its conducting capacity is nearly equal to copper. The experiment of using an alloy of aluminum in the manufacture of cannon has been tried with very satisfactory results, although its cost has heretofore prevented its general adoption. Once it becomes cheap, however,—and it is only a question of time when it will become so—on account of its being only one-third the weight of iron, the ease with which large guns can be handled will give it a decided advantage over steel, bronze, or any like metal. It was this fact and the hope of being able to use it in naval warfare which influenced the Emperor Napoleon III. to extend his patronage to Deville, while the latter was carrying on his experiments. It is interesting to note, too, in connection with the patronage of this emperor, that the first article ever manufactured of aluminum was a baby's rattle, which was intended for the unfortunate Prince Imperial, who afterward lost his life in Zululand.

As the methods for its extraction become more perfect and its cheapness increased, may we not expect to see houses even built of hollow moulded bricks of aluminum, instead of bricks of clay, and these houses filled with furniture carved and moulded from this beautiful and indestructible metal? The world has had its stone age, its bronze age, its iron age, and its steel age. Is it not possible that it may now be entering a new aluminum age, which will be as much in advance of the present as the bronze was in advance of the stone?

The lightness, conductivity, malleability, and other valuable properties of this remarkable metal would seem to make it a very desirable base upon which to construct artificial dentures, and it has been used for that purpose with more or less success. Swaged aluminum plates have been constructed, but the difficulty of finding a suitable solder has never been entirely overcome. Probably the best solder for this purpose is Dr. Starr's, composed of seven parts aluminum to one of pure tin. Another alloy used for soldering aluminum is composed of 90 parts tin, 5 parts bismuth, and 5 of aluminum. Thus far, however, the attempts made to attach teeth to swaged aluminum plates by means of solder have been far from satisfactory. Vulcanite attachments have yielded better results, and very desirable dentures can be constructed in that way. It is found that rubber vulcanized in contact with pure aluminum becomes intimately adherent to it, and as the aluminum plate on account of its lightness can be made two or three times as thick as a gold plate, very strong dentures can be constructed in that way. Another and still more promising form of aluminum work is that known as "cast aluminum." One of the first and most successful experimenters in this direction was Dr. Bean, of Baltimore, who patented a very ingenious process for casting aluminum plates. The process, however, was difficult and somewhat uncertain in its results. The chief difficulties to be overcome in the casting of aluminum depend upon its lightness, and its lack of fluidity when melted. Dr. Bean attempted to overcome these by means of a tall column of melted metal, which, acting by its own weight, forced the metal in the flask into all the irregularities of the mould. Unfortunately while ascending Mt. Blanc in 1870, this experimenter was killed by an avalanche and his method never came into general use.

Dr. Carroll, of Meadville, Pa., has invented a process for casting aluminum which in the hands of skilful mechanics has been eminently successful. The sluggishness of the metal when melted is overcome by pneumatic pressure, which forces it into the finest crevices of the mould. The outfit made use of by him consists of an automatic gas furnace, a specially constructed flask, and a pneumatic plumbago crucible, with accessory apparatus. In casting, the flask containing the mould is heated in the

furnace along with the crucible containing the metal, and when the metal is melted, the crucible is placed in position over the flask, and the melted aluminum is forced into the mould by pneumatic pressure from a rubber bulb. By this means an almost exact reproduction of the wax base-plate can be obtained, and as the aluminum files easily, it can be trimmed to any shape and polished almost as readily as a rubber plate.

Just to what extent these cast aluminum plates are likely to take the place of vulcanite in the near future I am not prepared to say, but I believe that when the advantages of aluminum as a base and the simplicity of the process come to be recognized, the use of vulcanite as a base for artificial dentures will be abandoned by a large number of dentists. I am led to believe this because aluminum possesses not only the ordinary advantages of a metallic over a plastic base, but has several important advantages peculiar to itself. Among the most important are :—

1. Exceeding lightness—a full upper denture weighing usually from $\frac{1}{4}$ to $\frac{1}{2}$ oz.
2. Perfect adaptation—being cast directly upon the model of the mouth.
3. An unusual degree of conductivity.
4. Perfect freedom from oxidation.
5. Compatibility with the tissues of the mouth.
6. Great stiffness combined with strength and durability.
7. Simplicity of the process of manufacture.

Dentistry in Ontario of Age.*

By J. B. WILLMOTT, D.D.S., L.D.S., Toronto.

"When I was a child I spake as a child, I understood as a child, I thought as a child; but when I became a man I put away childish things."—Paul.

"Coming of age" is an event in the life of a young man of such importance as to be worthy of the interest which it usually excites.

To the individual it marks the period when in the eye of the law he ceases to be an infant and a ward and is permitted to transact the most important business affairs of life on his own account. In other words he becomes his own master. With these privileges come new responsibilities. Assuming the duties of manhood, it becomes him to put away the frivolities, not to say the follies, of youth, and to take more serious views of life; to set himself seriously and earnestly to work out life's problems and to fulfil its highest purposes, following out the example of the great Apostle,

* Read before the Annual Meeting of the Dental Society of Ontario, June 27, 1889.

who, when he was a child "spake as a child and thought as a child, but when he became a man he put away childish things." Other things besides boys pass through this process of incubation, birth, development, maturity. All great enterprises, all important inventions, all valuable manufactures, all the learned professions have this common history. A germ in the mind of an individual; an embryo assuming definite form, shape, substance; a birth into activity, and then the doubtful, uncertain, anxious, experimental time of infancy going on to the callow, imperfect period of youth, by slow degrees developing strength and completeness and finally manhood. The profession of Dentistry in Ontario, with such a history behind it, attained its majority on the 4th day of March in this year of grace, 1889.

The period of incubation of dentistry in this Province dates back into the dim past, far beyond the recollection of the writer, whose earliest memory of it is as an embryo, manifesting considerable vigor and rapidly pressing toward the condition when it would be ready to enter upon a new sphere of action. Early in the year 1867 a number of its most earnest friends, hoping that the time for its accouchment was drawing near, set about making the necessary arrangements. These occupied more than a year, and then the charge of the interesting event was committed to the Ontario Legislature, with Dr. Boulter, of Hastings, as chief physician, with a staff of judiciously selected assistants, and a larger staff of not so judicious volunteer nurses.

The labor was protracted through several weeks, and the history, as narrated by one of the midwives, is one of alternate hope and despair. The difficulty arose entirely from the officious interference of the volunteer nurses, who each one insisted that his advice and no other should be followed. The doctor was almost distracted, the friends of the unborn infant in despair, when on the last day of the session a safe delivery was effected.

On the following day, March 4th, 1868, amid the blaring of brass instruments, the beating of drums and salvos of artillery, the Lieut.-Governor, Sir Wm. Howland, presented the new born corporate infant to the public, bestowing upon it the high-sounding but "truly loil" cognomen of the Royal College of Dental Surgeons of Ontario.

In the twenty-one years that has elapsed has dentistry as a profession grown from infancy to manhood? Has it ceased to think as a child, to speak as a child? As we look at dentistry as it is to-day, while we joyfully recognize growth and development and a good measure of maturity in many directions, in some we are obliged to confess that not yet are all "childish things put away." Of those things which should have disap-

peared with the youthful days of our profession we note the petty jealousies of professional brethren, which still so widely exist. The almost entire absence of any *esprit de corps* which would make the interest of one the interest of all, and the interest of all the interest of each one. How many of us are proud that we are dentists? How continually do we hear dentists belittling their calling and lamenting the fate that fixed their occupation? We have not yet cultivated that respect and enthusiasm for our profession which will force the public also to respect it. We note again an absence of such professional etiquette as would indicate full professional maturity. There is still too much disposition to misrepresent and take advantage of each other. Perhaps no class of men do meaner things and say meaner things of each other than dentists. But we have not space to particularize. These things ought not so to be. Possibly the most glaring, because the most public, evidence of lingering "childishness" is in the manner and method in which we appeal to the public for patronage. Probably in some respects a comparison of the advertisements of dentists to-day with those of twenty-one years ago will show some improvement, but in many respects there is unmistakably a retrogression.

Pasing by the grosser forms of quack advertising, which disgust every sense of professional propriety and humiliate every honorable practitioner: simply glancing at the atrocity not long ago committed in a growing town by two competing champions of the forceps who published week by week in the public papers the number of teeth extracted as indicating the prosperous state of their practice; and not even looking for very shame's sake at the 8 x 12 feet boards which stand at every public road entrance to the city of Toronto, which in fourteen inch shaded letters set forth the name and address of ———, who for a very small consideration makes "sets of teeth" and does other "dental jobs"; I wish especially to direct attention to the tendency to present to the public as a claim to patronage, not skill or experience or special aptitude, but simply *cheapness*. Only cheapness, and nothing more.

Law has its "shysters," medicine its "quacks," divinity its "impostors," but it has remained for dentistry to cheapen itself and depreciate the value of its services to the public.

Fancy a lawyer advertising "best advice only \$9, poorer quality \$5," or a physician, "best prescriptions only 50 cents, common ones 15 cents; or a clergymen, "best sermons only \$5.00 each, and if two be taken on a Sabbath no extra charge made for attending Sunday School in the afternoon." And yet our daily and weekly papers contain scores of this class of dental advertisements, to the utter disgust of professional and intelligent men and women. Why will dentists pursue this course and shut them

selves out of the most desirable class of practice? Surely it is time to put away from us this evidence of "callow youth."

There is, however, a brighter side to the picture. We have accomplished much which may be accepted as evidence of respectable and vigorous growth and at least an approach to maturity. In 1868 dentistry in this Province was chaos. No preliminary examination, no required pupilage, no standard for admission to practice, no provision for education in dentistry. Every one doing what was right in his own eyes. Not by any revolutionary changes have we reached our present position. By a steady evolution, well considering every step and taking none backwards, we have reached a status of which every dentist may well be proud.

The profession incorporated by statute - the entrance to it in the hands of a Board selected by ourselves and free to make the standard all that they may consider wise, untrammelled by any unhealthy and depressing competition from without; a matriculation examination higher and a pupilage longer than any College, State or Province on the continent, excepting possibly the Province of Quebec, and a standard of final examination which is equal to any and probably more rigidly enforced than any Dental College in America, mainly from the fact that the examination is independent of the teaching Faculty and conducted by men who have no financial interest in passing few or many of the candidates. With a limited constituency and consequently a comparatively small number of students, and no financial resources beyond the lecture and examination fees, we have organized and maintained a Dental College of which we will not now say more than that in comparison with other Dental Colleges no Ontario dentist need be ashamed.

In this process of growth, dentistry, not in the individual but in the aggregate, has occasionally been a little bumptious.

In its earlier years it was very anxious for some kind of outside recognition that might add to its respectability or its importance.

About the year 1874 this bumptiousness assumed the form of a burning desire to obtain the privilege of writing ourselves doctors. In turn, application, formal or informal, was made to Parliament and to each Ontario University, with one exception, for such recognition as would enable our students to obtain the degree of D.D.S. In turn these applications were officially or unofficially refused or declined. The dental authorities took this to be a suggestion to set to work to make ourselves of sufficient importance, and then we would secure recognition. Acting on the hint, the Dental School was organized, the curriculum raised, annual dinners held, the press to some extent utilized, and within the past year, at our request, the University of Toronto has affiliated our College, established

an examination in Dentistry —accepting our curriculum —and has held the first examination and conferred the degree of D.D.S. on twenty-five of our licentiates. From the press we learn that in the governing body of another University, without any request of ours, notice has been given of the introduction of a statute to establish a curriculum in dentistry leading up to a degree. It is a somewhat interesting and fitting coincidence that on the day Ontario Dentistry attained its majority, March 4th, 1889, twenty-five dentists and dental students paid in their fees and filed their applications for admission to the first examination ever held by a British University for a Doctor's Degree in Dental Surgery.

And now as we look out into the future from our present vantage ground, what are the duties of the hour?

1. To cultivate an *esprit de corps* in the profession which shall bind us together in earnest efforts to elevate and advance it.
2. To eliminate all unprofessional practices and especially those which come before the eye of the public.
3. To take pride in our calling, cultivate an enthusiasm for our work which will help us to render better service to our patrons.
4. To be satisfied to be dentists, and endeavor to make dentistry worthy of our highest ambition and most earnest efforts after excellence.

For myself I have no ambition to be ranked as a medical man practising a specialty. In my judgment dentistry cannot properly be considered as a specialty of medicine. It is true that it is a branch of the healing art, but it has not grown out of medicine; it forms no part of the curriculum of medical schools; it has received no aid from medicine as a profession, though individual physicians have rendered it great service.

Dentistry has developed and grown up outside of medicine and independent of it. It has built its own colleges. It has its own text books, its own literature, its own periodicals, its own societies and associations, and its own appliances. In its genesis and history no closer relationship can be traced than as an adjunct of medicine it covers an important field in the healing art for which medicine had failed to make provision.

Far distant be the day when our societies, our associations, our clinics, shall be abandoned that we may form a section in a medical association. We have done well in the past and may do better in the future. We have made great and rapid progress in the past, and if true and diligent the future holds in store for us still greater advances.

Let us be satisfied to be dentists, and at the same time full of ambition to be skilful dentists, intelligent dentists, scientific dentists, honorable dentists, and the public will not be slow to accord to us all proper respect and all needful social recognition.

Celluloid in Mechanical Dentistry. Is it to be Recommended?

BY S. GLOBENSKY, L.D.S., MONTREAL.

The limited time the committee have given me for this paper must necessarily force me to omit many points in the discussion, but I will do my best to be brief and practical.

Had it not been for the strict enforcement of the rubber patents of the Goodyear Rubber Company, in 1869, I am disposed to believe Celluloid would never have obtained the notoriety it enjoyed for a long time under the old principle of manipulation; but recent improvements have perhaps given it a more favourable consideration, when properly made. It is one of the cheapest materials used, and if not properly made, it not only contracts after being moulded into shape, but it absorbs the secretions.

What is Celluloid? It is derived from Cellulose. What is Cellulose? It is a woody fibre of plants, and has illustrations in the cotton wool used in our offices. But to make the Celluloid of dentistry the Cellulose of hemp is preferred, as it is stronger than that of linen or cotton wool. It is first converted into paper by paper machines. It is then put into a mixture of nitric and sulphuric acids after washing. We then have the gum, cotton or pyroline base used in mechanical dentistry fifteen years ago. It is explosive and takes fire at 300 degrees of Fahrenheit. It is now reduced to a pulp. A mixture is then made as follows:

Pyroxline Pulp, 100 parts.

Camphor, 40 parts.

Oxide of Zinc, 2 parts.

Vermillion, 0.6, with alcohol to soften the camphor.

This mass is now put under a hydraulic pressure of 2,000 pounds to the square inch. The cylinder in which it is pressed has a hole in the side near the bottom, and the pressure causes the Celluloid to ooze out. It is then cut in proper sized pieces and moulded by pressure and heat to the upper and lower shapes such as I exhibit. It takes two months to season these blanks, as they are called, in a room of a temperature of 160° Fahrenheit.

A good deal of humbug has been used to recommend this material to an innocent public. For instance, I have been told by patients that they were advised to have this, and warned not to have red vulcanite because of the mercury in it. They were not told that this pretty material, even transparent as it is, also contains vermillon, which is a form of mercury. Ex

perience teaches us that the alarm against the material on this account is a false alarm, and if any sponginess of gums or soreness occurs in well prepared plates, it is due to non-conductibility, to want of cleanliness. Vermillon is inert as mercuric sulphide. Neither water, alcohol, the alkalis, or the mineral acids have any action upon it. To decompose it, and to set metallic mercury free, a temperature of 600° Fahrenheit is required, and only strong nitro-hydrochloric acid will convert it into corrosive sublimate. Sometimes, however, a lively imagination will perform miracles with mercury in vulcanite, celluloid and amalgam, where the most skilful chemistry will completely fail. The advantages of Celluloid may be dismissed as follows: The colour is more agreeable than vulcanite. It is transparent. It is lighter than rubber. Even the camphor taste disappears if the plate has been properly prepared in a dry chamber with a high and uniform heat and no sudden change. The temperature should be 315° or 320° in the "new-mode" heater. Its disadvantages are: That without careful manipulation misfits are frequent. It is often porous. It is not only easily warped when being made, but by extreme heat sometimes of coffee and tea. The teeth do not hold as well as vulcanite to the pins. It is no use for gum teeth, and the material is a very poor imitation of the beautiful porcelain gums. Frequently the camphor taste is so objectionable that you must immerse the plate in alcohol 95° over proof for four days before inserting it. It is cheaper to make than vulcanite, and yet there is such fraud practised upon the public by men whose only idea in the profession is to make money, that very high fees are charged for what is often very inferior work.

I have tried to confine these remarks to practical points, without any attempt to elaborate. The duty of this association is to protect the public from imposture, and it is well to pronounce opinion as to whether or not it is true that Celluloid is the best material for mechanical dentistry. For my part, I would be ashamed to say so.

Dental Education.

By S. J. ANDRES, L. D. S., Montreal.

In looking back some years, the time was, when all that was required of a man to make him a dentist, was a certain amount of ingenuity, and dexterity with tools; but that time is among the things that were, and dentistry is no longer looked upon as a trade, but a profession, taking high rank with the learned professions of the present day, and will ere long be standing at the front, side by side with that of the medical profession itself. To

attain that degree of high standing, it will require hard work on the part of the student, and a high grade of literary and scientific education.

There is no pursuit in life which does not require a certain amount of education and intellectual training. It is as equally necessary to the humblest artisan as to the most dignified profession. Any lack of it which the calling demands is at once discovered and brings with it regret and shame. The artisan who works in metal, wood or stone, and prepares it for the uses of civilization, in order to succeed in business, must possess it in a certain, but perhaps limited, degree: while the professional man who wishes to rise to eminence, who has the writings of great authors to "read, mark, learn and inwardly digest," to meet emergencies often of the most trying character, requiring sound judgment. To give opinions which must stand the severe strain of public criticism, requires an education of the highest order.

To-day no one will doubt the statement that the man whose mind has been thoroughly trained in the attainment of a literary, scientific and classical education, is much better prepared to grasp and search out the hidden mysteries of professional lore, than one who has never had those advantages. The mind of an uneducated man is not able to cope with the facts and principles of science, and garner them up into the storehouse of his memory, "to bring forth fruit in good season," as seed sown upon fertile ground.

To fully recognize and appreciate relations that the teeth bear to the various organs of the body, it is necessary that the student should be familiar with its entire organism. Once it was thought that a perfect knowledge of the anatomy of the head was all that a dentist required in the practice of his profession, and there are many who even to-day are in practice holding the same opinion. That he should be familiar with that part of the body there can be no doubt, but that he should confine his knowledge to that portion of the human economy, and to it alone, is to be far behind in the progressive teachings of the dental schools and literature of the present day. It does not matter how thoroughly well up a man may be in the anatomy of the head, its bones and muscles, its blood vessels and nerves, which are distributed to the teeth, and as well as the microscopical structures of these organs, if the nervous system with its reflex action, the circulatory apparatus with its life giving fluid, also the various other organs with their several functions, are unknown to him. It will be impossible for him to understand how the teeth can be the cause of cerebral and other sympathetic derangements that children are subject to during dentition, as well as the odontalgia of the parturient female, or the constitutional effects of carious teeth and vitiated oral secretions. Having been thoroughly trained in the

knowledge of the whole human system, and qualified to diagnose with ease each case as it comes before him, he is able by judicious advice, proper remedies and well-ordered operations to give instant relief to his patient, whether child or adult; and when consulted by the intelligent medical practitioner (where he has reason to believe that the dental organs are in some way connected with the disease he is treating), the dentist is qualified by his more familiar knowledge of their abnormal conditions, not only to be able to assist him in making his diagnosis, but brings credit to his profession and commands the respect of the physician by the knowledge shown.

The dental profession of to-day are largely responsible for the status of the profession of the future. If we are to be classed in the rank and file of those men who are called, to use a vulgar expression—"quacks," or "tooth carpenters"—and content to stay there, then we must fall to the level of the mechanic, and only require the education necessary for that purpose, but if we are to stand side by side with the members of the scientific and honorable profession of medicine, who are already willing to extend the right hand of fellowship to the men of our profession who will become entitled to it by being equal to them in educational ability and attainments, for that purpose, we require education of the highest order.

The highest object of the dental profession of to-day should be to elevate it to that high standard of excellence in education and respectability, which shall merit the recognition which we claim from our brethren of the medical profession.

I venture to make the assertion, that there is not one of the scientific professions of to-day that have made greater and more rapid strides in its advancement, than that of our own; that we shall not long be confined to the same narrow field of operations to which we have been in the past.

There are facial and oral diseases which properly come under the treatment of the dentist, many of them demanding the highest surgical skill and manipulation. And we have men in our profession who are equal to any occasion demanded of them. But there is room for more, and when the profession is supplied with the men qualified for the field that is open to them, then will they be called upon more generally to treat such cases.

I do not wish to be understood to decry the work of good men and true, of the past; for many of them have always been ahead of their times. Men who have given their time and energy as well as their money, to organize schools of dentistry, to give us dental literature of a high order, which is yearly improving and has been the means of putting our practice into its present scientific and practical status, have given to us a wider range of thought, and far better class of operations since their operations began and these schools have been organized.

Complaint has been frequently made (and perhaps not without some show of reason) that young men are graduated and sent out into the world who do not really possess the qualifications these institutions have claimed as their standard, and diplomas have been granted to persons wholly unfit to receive them. Are the colleges the only delinquents? Are not some of those who consider themselves members of the profession responsible for having sent out from their offices those who were equally unworthy of the title of dentist? Do they see to it that the parties they receive into their offices as students are possessed with brain sufficient to acquire the necessary educational qualifications, coupled with determined perseverance, to overcome the difficulties it requires to become a good practitioner? Are we both in precept and example without sin? Then let him that is without sin cast the first stone; at the same time remember that people who live in glass houses should not throw stones. Then let us cease from grumbling at the colleges; at this or that system of education, but remembering our own sins of omission, as well as theirs of commission, resolve that in the future any person desiring to enter the ranks of our profession shall possess the same qualifications in educational ability and requirements as are demanded by the best medical schools of our country. Instead of cavilling at the discrepancies of our schools, remember that we owe to them much praise for the good they have done. And if we desire them to be more exacting as to the qualifications of their graduates, mentally and morally, let us see to it that we be more exacting in our demands in the same direction of those we accept as students, and encourage by every way possible every legitimate means that can be used to improve and elevate the status of our membership.

Knowledge is power and to its possessor it gives intellectuality and efficiency; these attributes combined and used in the right direction will command respect in all lands and among all people, and every avocation where they are brought into action must assuredly rise in public esteem. We should not accept as students either in dental schools or in our offices any person who is not so qualified and whose mind is not fitted by education and a high sense of honor for the profession which he proposes to enter, so that he will guard well its interests, and with a faithful and honorable devotion to the calling he has chosen, do all that a true heart and an active hand can, to increase its efficiency and reputation.

It seems to be a current opinion that the profession dignifies the man. It is just the reverse. It is the man who dignifies it by shedding upon it the lustre of a well-trained and cultivated intellect; a well balanced mind and an unsullied character which the public will recognize and delight to honor; and I am glad that our profession is rapidly being filled with such

men, and that legislation is being used with good effect to that end; that our legislators are recognizing the need of good laws well administered to carry on the good work and protect us from the direful influence of empiricism, and the public from imposition.

You have on this the 21st anniversary of this association organized an Odontological Society, which, if laid upon a solid foundation and well built upon, will be to the young men of this province who seek to enter the profession a means of incalculable benefit to them as a stimulant to help them on to the goal of perfection.

With a grand future before us, assisted by the laws we have succeeded in placing on our records as the corner stone of our society, let every licentiate feel that he is in honor bound to see that the laws shall be well administered and respected, and endeavor to build a structure upon them that shall be a monument of glory in the years that will come in memory of those who have helped to lay it; that shall shine out upon the pathway of the men who come after, guiding them toward and in the path of wisdom as the beacon light on the rock-bound ocean shore guides the storm-tossed mariner to a peaceful harbor; writing on our banner in letters of gold the word "Excelsior."

Professional Fees in Quebec Province.

BY DR. B. S. STACKHOUSE, HULL, QUEBEC.

It seems to me that this is the place where we should discuss our material interests as business men, as well as the interests of our patients. We meet here to-day to learn from each other. What for? In order that we may apply theoretical knowledge and practical ideas for the direct benefit of our patients. It is true we personally profit by all improvements in our profession, but it is mostly a profit of rest not of pocket. It costs a man twenty times more to equip an office to-day than it did twenty years ago. The cost of living, rents, taxes, dental material, is very much increased, and yet in many branches of our profession we receive no higher fees than thirty or forty years ago, and mechanical dentistry has been degraded by the public demand for the standard of superior gold plates and continuous gum worth at \$60 and \$80 a single set, to vulcanite and celluloid, all the way from the cheap and nasty manufactures of \$10 to \$20, \$25 and \$30. Thirty years ago a dentist got along with a hundred dollars worth of instruments, while to-day many feel they must have from one to

two thousand worth. Then the best dental chair cost \$75; to-day they cost over \$200. Scores of little appliances and ingenious inventions are used and used up, to decrease pain, and to make the dental chair less horrible.

We do better and easier for ladies, and those who have the least of all courage in our chairs—our own sex. Even to childhood, the dentist is not now the daily dread and nightly ghost. In the surgical and therapeutical departments, in our materia medica, in our operative, we often perform miracles on dead bones, and do operations that would make retired dentists of ten years ago stare with amazement.

Yet for all this, there is no escaping the personal and individual drain on our nervous force; the exhausting strain of position; the eye strain; the brain and back strain.

Is not this worthy of pecuniary reward much better than we receive? Is it not true that most of our most successful men in city and country have made most of what money they possess by devotion to objects outside of their profession, and that success in obtaining a large or influential practice, does not mean that pecuniary success which favours often professional success? Not long ago a young medical man told me that he believed one of the first duties a young medical man owed to himself and to society was to marry money, without much regard to the girl, because a certain portion of the public in every place was captivated by the show that money enabled a man to make, and that it was not a man's education in his profession, it was not his reputation as a student, or his reputation as a success among his confreres, but it was his ability to make a show that caught public attention. I think this is not always, though it is often, true. However, my purpose in this paper is to plead, first, for a reasonable increase of our fees; second, for a division of fees into 1st and 2nd classes; third, for invariable charge for consultations; fourth, for a strictly cash basis of doing business. Cash at once for all mechanical work, and the rendering of accounts the moment operations are completed. Everywhere in the United States, everywhere in Ontario, cash is insisted upon as a principle, from which the departures are exceptional, and I believe that there is no place in the whole world of dentistry where quacks are so much over-paid, and skilled men so badly paid, as in this Province. If the public ever complains that the dentist is not a dentist only, and does not give all his energies to his profession, it is the fault directly of the public. Yet there are people who say it is the fault of the dentist in not raising his fees. Let us try the experiment and find out where the fault lies.

Dental Dots Distilled.

By D. V. BEACOCK, L.D.S., Brockville.

[The question of educating the public on matters concerning the teeth is very simple. The public must be given information. Who should give it to them if not the dentist? How will he give it to them so that they will read and remember it? The following is one method, which might be adopted by any one, and distributed to patients in the office.—ED.]

Nature has laid out all her art in beautifying the face; she has touched it with vermillion, planted in it a double row of ivory, made it the seat of smiles and blushes, lighted it up and enlivened it with the brightness of the eyes, hung it on each side with curious organs of sense, given it airs and graces that cannot be described, and surrounded it with such a flowing shade of hair, as sets all its beauties in the most agreeable light.

THE DENTAL PROFESSION.—“It has established and prolonged the reign of beauty; it has added to the charms of social intercourse, and lent perfection to the accents of eloquence; it has taken from old age its most unwelcome feature, and lengthened enjoyable human life far beyond the limit of the years when the toothless and purblind patriarch might well exclaim ‘I have no pleasure in them’”—*Oliver Wendell Holmes.*

TRIALS.—Some of the most trying experiences in a dentist's life are caused by people who expect a great deal more than it is possible to do. One of these is that many people expect to get a set of artificial teeth, a few weeks after extraction, that will do as good service as their natural teeth and give no more trouble in use. They are always disappointed and hold the dentist responsible for the failure. The sooner it is understood that no artificial substitute for any of nature's organs can do the service required of it as well as the natural organ it replaces, the sooner people—many people at least—will cease to worry the dentist with the troubles they experience in wearing artificial teeth. No one expects a wooden leg will run as fast as a natural one, or that a glass eye will see as well as the organ it replaces, but many people have the idea that a set of artificial teeth will do better service than the natural organs ever did. The wearing of these substitutes is a matter of patience and persistence. Make up your mind that the loss of your own teeth is more or less of a misfortune, and that replacing them with artificial ones is only the best that the dental art can do. In appearance and arrangement, the artificial are often superior to the natural, but for use in eating, etc., nothing but patience and perseverance will enable

you to get good service from them. This is especially true in mouths that are difficult to fit.

WRONG.—The sooner people understand that the loss of natural teeth is a misfortune to be avoided, the better it will be for their health and comfort in after years. The too prevalent idea that artificial teeth are as good as the natural ones, cannot be corrected too soon. It is one of the results of false teaching for which a certain class of dentists is responsible. The necessary loss of the natural teeth should be looked upon with regret instead of welcomed, or encouraged by wilful neglect, as is the case with thousands of people who deliberately plan the loss of the teeth that they may have artificial substitutes. It is a most reprehensible practice, and should be corrected.

Neglect is the mortal enemy of the teeth.

Care of the teeth is one mark of good breeding.

"Crippled for life"—any person who has lost a tooth.

No personal adornment can compensate for ugly looking teeth.

Knowledge is the only remedy for evils from which we suffer.

Toothache never makes a postponement on account of the weather.

The most beautiful face is marred by decayed and unsightly teeth.

The value of sound teeth as an aid to good health can never be over estimated.

"Cheap" dentistry is usually most expensive, physically as well as financially.

The competent dentist is as much of a blessing to a community as the physician.

The teeth deserve the best care we can give them, both personal and professional.

Perfect health can not long be retained with decayed teeth, or an unhealthy mouth.

If health and comfort are worth anything, a perfect set of teeth is a priceless treasure.

To him who has a dirty unsightly set of teeth Nature is ever calling, "Unclean! Unclean!"

Operations on the teeth are not generally painful, except as a punishment for procrastination,

The mouth is the portal of life; through it must pass all that sustains life in the form of nourishment.

There is nothing of equal importance to the race that receives so little care and attention as the teeth.

There is nothing that counts for so much in their preservation as thorough cleanliness of the teeth.

"Tumors, cancers," etc., in the mouth, are usually simple cases in the hands of a competent dentist.

Good health, comfort and happiness of life are often marred or ruined by neglected teeth and a diseased mouth.

A decaying tooth, like pent-up fire in an unexpected place, requires only a little fanning to create a panic.

Artificial crowns set on sound roots make as artistic and serviceable an operation as a dentist can perform.

Begin the use of tooth powders as early as a tooth brush can be properly handled, and keep it up through life.

The highest aim of the physician is to prolong life ; the highest aim of the dentist should be to preserve the teeth.

Nine-tenths of the foolish dread of dental operations disappears when in the hands of a careful and competent dentist.

Too vigorous brushing of the teeth, and especially with a stiff brush, may result in irritation and bleeding of the gums.

The utter indifference manifested by the great majority of people regarding the value of their teeth is almost bewildering.

There is no operation in dentistry more pleasing and satisfactory than that of placing artificial crowns on healthy roots.

An aching tooth is nature's emphatic protest against violated law, and the penalty falls without fail on the guilty victim.

There is nothing that adds so much to the charms of any face as a clean mouth and a set of sound, natural teeth, well cared for.

The dentist who has no higher ambition than to "kill nerves," "extract teeth" and "make plates" is hardly worthy the name.

"Gold cannot be purchased at the price of lead, nor can you obtain professional skill without paying decent professional fees."

One price of sound teeth is perfect cleanliness of the teeth and mouth. It is a price which common decency would seem to demand.

Children's teeth require more attention than those of adults, just as the tender shoots require more attention than the full grown tree.

Average durability of plates : Rubber 6 years, celluloid 4, gold 16 years. Continuous gum and porcelain work is the most durable.

Never part with a tooth that can be made serviceable any more than you would permit a surgeon to amputate a finger that has a felon on it.

A dentist should be sympathetic by nature, but he must never let his sympathy influence his judgment even if pain is necessarily inflicted.

Consult a competent dentist at least twice a year, and have any needed work done. "A stitch in time" theory applies to the care of the teeth.

The time is coming when the continued neglect of the teeth will be

looked upon as a lack of good breeding. It should be so now. The neglect of a personal care of the teeth should be ranked with a similar neglect as to the cleanliness of the face and hands. If one must be neglected it were better that the hands should suffer.

Modern dentistry is capable of working wonders in the correction or regulation of crowded, irregular teeth.

Diseased gums are a prolific cause of loosening of the teeth, as well as of a foul breath. Proper treatment will diminish or remove the trouble.

Patronize only thoroughly competent dentists. The teeth are too valuable to risk their ruin by poor work, for the sake of saving a few dollars.

There is nothing that can so mar the beauty of the human face in its most pleasing aspect as a mouthful of badly decayed or discolored teeth.

Most of the neuralgia of the head and face results from diseased roots or decayed teeth. Medical treatment will not cure it but may relieve it.

We may employ skill to remedy physical defects caused by our own neglect, but we can not have these defects restored to a normal condition.

The progressive modern dentist will very rarely find it necessary to extract a troublesome tooth if allowed to follow his own judgment in the matter.

If we neglect to pay proper attention to our teeth, nature will exact a penalty from us that will tax our physical endurance for all time to come.

If the portal or entrance is broken down or decayed, we shall find the building in like condition. So with the teeth and mouth as compared with the body.

Prosthetic dentistry, or the art of restoring lost organs, is reaching a high degree of perfection. No one need be without artificial substitutes for lost teeth.

If you neglect your teeth the fillings are apt to fail, your dentist is unjustly blamed, and your most intimate friend will not tell you that you have a bad breath.

Do you care for the health and vigor of your children? If you do, study the conditions that produce sound health, chiefest among which are sound teeth and proper diet.

If people never see described in print, and are never told by a dentist what are the possibilities of modern dentistry, how are they to be blamed for not knowing it?

The fact that dental work is disagreeable, should not prevent all persons from having it done, and in time, for delay usually means simply an increase of the very thing dreaded.

If a physician fails to cure a case that common gossip thinks should be restored, how "Mother Grundy" does busy herself belittling the professional ability of the unfortunate doctor.

Teeth must be extracted at the proper time to give space for the new teeth. Try to have the teeth grow without coming in contact with other teeth in the same arch.

After the teeth are all through the gums, a brush must be used in addition with some kind of a wash that will cleanse the teeth ; brush up and down, not across the teeth.

If the same care were given the natural teeth from childhood that is necessary to properly care for and cleanse a set of artificial teeth, the latter would not so often be needed.

That teeth with dead nerves will give no further trouble is a popular belief, but a very serious error. "Dead nerves" give rise to more serious complications than are possible from ordinary toothache.

It is not generally known that a root or badly decayed tooth can be replaced in appearance and use, by placing an artificial crown on root, but it is done with perfect success.

Many people think that a decayed tooth once filled should last a lifetime, and are inclined to blame the dentist for his failure to preserve the tooth. A tooth that has once decayed may decay again sooner or later.

Wearing temporary teeth too long often results in permanent injury to the gums, especially in cases where rubber plates are worn. They should in no case be worn more than a year.

How can the system be nourished by food that is not properly masticated? The overworked stomach rebels finally, and our national disease, dyspepsia, counts another victim.

As a rule, all sound teeth, or those that can be made serviceable, should remain in the mouth when preparing it for artificial teeth. This is especially true if it refers to the lower teeth.

There are many persons the conditions of whose mouths are not equalled for foulness anywhere in the animal kingdom. They are not only a punishment to themselves but to every one with whom they associate.

It is not fair to expect the dentist to exceed nature. If nature's work lasts no longer, the dentist can hardly be expected to do what nature did not do, give you teeth that will not decay—unless they are *artificial*.

Some one has suggested that a law should be passed punishing dentists for extracting teeth that should be saved. It would destroy the business of about one-half those calling themselves dentists.

The idea that when the nerve is "killed" no more trouble will follow from that tooth is entirely wrong. Ulceration, swelling of the face, etc., are only experienced when the nerve is "dead"—never before.

Never tell a child that any necessary dental operation will not hurt. A falsehood does two things, deceives the child to no good purpose, and causes a loss of confidence in its elders that may never be regained.

Neuralgia of the heart—angina pectoris—may be due to heart disease, and yet it as often occurs independent of the latter. When it complicates heart disease, death is very liable to occur during an attack of neuralgia. As diseased teeth are a predisposing cause of neuralgia, how important it is that we keep these organs in a condition of health.

NEURALGIA.—The terrible suffering often endured for months from this affliction is frequently considered a mystery. "Everything is done for it," but without affording relief. Let it be understood that almost invariably it is caused from bad teeth.

Never wait for the "swelling to go down" in an abscessed tooth before extraction. Very serious results may follow such delay, in a few cases, resulted in death. Never delay visiting a good dentist when swelling appears.

When people use a little good judgment in the matter of preserving the natural teeth we shall see fewer dyspeptics, less neuralgia and general debility, as well as the disfiguring of the face by the loss or bad condition of the teeth.

Do you brush and cleanse your teeth daily? If not, why not? They need it quite as much as your face and hands yet you would consider it a piece of unpardonable impertinence if any one asked you whether you washed your face daily or not.

"Dentist," said a young lady, "I thought after the nerve of my tooth was destroyed that I would have no further trouble from it." "I sincerely hope, madame, that you do not intend to hold me responsible for your thoughts," answered the doctor kindly.

Never have a tooth extracted if it is capable of being made to do good service. The dentistry of to-day, unlike that of the past, seeks to save teeth rather than to destroy them. The time is coming when it will be considered malpractice to extract sound and serviceable teeth.

Most people live in expectation and with the full conviction that their teeth must decay and must be extracted, and seem to have no other thought. Nature never so intended it, and the sooner a very different notion prevails among all classes everywhere, the better for the race.

That all persons can wear artificial teeth with equal comfort and satisfaction is another very common error. It is utterly impossible for artificial teeth to be fitted to some mouths, the very contour of the mouth and the condition of the gums make it well nigh impossible to secure the necessary adhesion.

It is almost amusing to see the look of astonishment with which many people receive the statement that the first teeth of children should be preserved by filling if they begin to decay before the time for the second set. In order of importance we should place the preservation

and care of these teeth first. If we had to choose between the best of care and dental service for the first or second set of teeth, we should give the first teeth the preference, knowing, as we do, that the second set would be in far better condition to do good service if the first set received proper care and treatment.

When people understand better the value of the teeth in the process of mastication of food, and the serious injury and frequent loss of health caused by their loss, there will be less carelessness and neglect of these valuable organs.

The best remedy for the abuses practiced by so-called dentists, and which dental laws are entitled to correct, is to instruct the people so thoroughly that "quackery" will be an impossibility. The greater the ignorance the more prosperous is quackery in any calling. Knowledge is a specific for *many* evils.

From the standpoint of *health* a person had far better be blind or deaf, than to be toothless. This is a startling proposition in view of the practice and belief of a large proportion of humanity, but we think any intelligent person can see the truth of it when he considers the value of the teeth in the human system.

It is a common thing to hear people say "I'll never have my teeth filled, but will let them go and have them out and get a new set." By that kind of talk, people acknowledge their own carelessness and neglect, for the teeth would not reach such a condition as to warrant such an expression, if the owner had done his duty.

We know of many cases of confirmed invalids, for whom medical treatment could do nothing, cured by putting the mouth in proper condition. More money is spent in doctor bills for treating disease resulting from diseased teeth, than first class dental service and the saving of the teeth would have cost, leaving out of the question the loss of time and the suffering endured.

Nature intended that man should masticate his food, and it is a mystery how people who have few or no teeth, manage to live. The fact that they do, show the wonderful adaptation of nature to new conditions. Yet all do not live in the fullest sense, for many are broken in health and suffer from dyspepsia and other diseases, that are more or less directly the result of a loss of the teeth, or a diseased condition of the mouth.

There is no question that putting the mouth in a healthy condition, has in many cases lengthened, if indeed it has not saved, the lives of persons suffering from diseased conditions caused by bad teeth. However, the teeth should be examined by a good dentist once or twice a year, and if any are decayed they should be filled at once. Do not neglect decayed

teeth until they ache, and never have a tooth extracted if it can be saved.

The dentist, who is satisfied with limiting the effect of dental teaching to those who may occupy his operating chair, is not worthy the name. The world is full of people who have never heard the new gospel of "Salvation" for the teeth offered by the skill of modern operative dentistry, and who will go to their graves in ignorance of its power to benefit them if no dentist makes an effort to teach people what they do not know.

There are over 20,000,000 of teeth sacrificed annually in the U. S. through ignorance or carelessness, and the criminal neglect thus exhibited "involves not only the waste of teeth, but is the fruitful cause of abscesses, facial deformities, neuralgias, dyspepsias, headaches, eye and ear troubles, and other morbid conditions."

"Killing the nerve" in an aching tooth is considered by many as a panacea for all trouble in that particular tooth. A dentist knows better, if he knows anything about his business. When an application has been made to destroy the vitality of the pulp (or nerve) it must be followed by proper treatment, cleansing and filling of the nerve canals in the roots, finally the cavity of decay filled.

No greater mistake can be made than the common one of neglecting decayed teeth until they ache, and then rush off to the dentist to have them filled. The average dentist will advise extraction. The tooth, if aching, can be saved nine times out of ten by proper treatment, but it takes longer, is more painful and far more expensive, than to have the same cavity filled when small and thus have prevented all extra trouble and expense.

It is difficult for a dentist to improve on Nature's work. If a sound tooth will decay, then a filled tooth is liable to do the same, no matter how carefully it may be filled. Hence it is as foolish for a dentist to guarantee fillings "five years," or "ten years," as it would be for the doctor who cures you of a disease to-day to guarantee that you never will be attacked with the same disease again. None but quacks "guarantee permanent cures."

The amount of sickness and ill-health caused by decay and loss of the teeth cannot easily be estimated. People frequently suffer from dyspepsia, neuralgia and other nervous affections, diseases of eyes, ears and throat caused directly or indirectly by the diseased condition of the teeth and mouth, and spend large sums of money to cure a trouble that a little personal care and small expense would have prevented, and the skilful dentist could cure.

It is painful to see the monuments of the unskilfulness of so many dentists that thousands of people are carrying around in their mouths. Many look as though the dentist had unconsciously turned his wonderful genius

to setting in white and ghastly prominence a single or double row of shining headstones, each to commemorate the memory of the departed tooth, whose place it is supposed to occupy. But usually such ghastly spectacles of a lack of skill and taste are the cheapest, and the few dollars thus saved condones for all the unsightliness of the face caused by such work. How cheaply some people value their personal appearance when it comes to artificial teeth! The very best that can be made are but poor substitutes for the natural teeth. It is a remarkable fact that you cannot get a good first class article for a third or fourth class price. This remark applies to artificial teeth as well as to boots and shoes, or watches and other merchandise.

Notes from the Proceedings of Societies.

THE IRISH BRANCH, DUBLIN, ANNUAL MEETING.—The meeting of the Association in Dublin last year developed the local talent of the Emerald Isle, and meetings of the Branch are regularly held. The meeting on the 27th July proved to be practically interesting—our friends, Messrs. R. T. Stack, W. Booth Pearsall, as usual, coming well to the fore.

EDINBURGH DENTAL HOSPITAL AND SCHOOL.—Scotland has awakened to the advantages of dental education, and the Edinburgh Institution is having a great success. Mr. W. Bowman MacLeod, L.D.S., read the Report for Session 1888-89. Efforts were being made to affiliate the Dental School to the Medical School of Edinburgh. Dr. Joseph Bell, President of the Royal College of Surgeons, in the chair, said that if it were at all possible, the dentist ought to be a medical or surgical specialist, if possible a surgeon first, and a dentist afterwards.—*Journal of British Dental Association*.

Dental Association of the Province of Quebec.

The regular meeting for the election of a new Board and other business, was held in the rooms of McGill Medical University, by kind permission of the Faculty. The following licentiates were present: Messrs. Trestler, Brewster, Leblanc, Bazin, Globensky, Gentles, Young, Pepin, Andres, Brown, Nichols, Fiske, E. B. Ibbotson, J. S. Ibbotson, Lovejoy, Vosburgh, Stevenson, Gendreau, Bourdon, Bourbonnais, Brosseau, Berwick, Seers, Mauffette, Cadieux, Fitzpatrick, Monjon, Larose, McDiarmid, Beers, of

Montreal ; E. Casgrain, Quebec ; J. A. Porter, G. W. Adams, Danville ; C. H. Wells, Huntingdon ; L. W. Dowlin, A. W. Hyndman, Sherbrooke ; B. S. Stackhouse, Lachute ; J. McCrae, Cookshire ; Lantier, Three Rivers ; Dr. C. F. F. Trestler, President, in the chair.

After the presentation of the Secretary's report, a report was presented from a special Committee of the Board, proposing the re-organization of the voluntary society ; its name to be changed to the "Odontological Society of Quebec Province," and to be chiefly under the management of the junior members of the profession, while supported and encouraged by all. It was suggested that the Board co-operate with this society, in the organization of the proposed Hospital Service and Clinical system referred to at the last meeting of the Licentiates, in 1886.

Messrs. Andres and Lantier were appointed scrutineers ; and Dr. Trestler addressed the members, and reminded them that he was not as young as he was when the Association was founded ; that without a single omission he had done duty on the Board for 21 years, and he wished to retire from office ; Dr. Brewster also expressed the same desire. The following were then elected the new Board : Messrs. Beers, Globensky, Casgrain, (Quebec), Leblanc, Hyndman, (Sherbrooke), Bourdon, Andres.

The motion to form the new Society was then presented and carried, and the following were elected officers : President, E. B. Ibbotson ; Vice-President, J. C. Nichols ; 2nd Vice-President, Brosseau ; Sec.-Treasurer, F. A. Stevenson. Committee : Messrs. Gendreau, Cadieux, Gentles, Berwick, Vosburgh, Brown, Pepin.

The meeting then adjourned, after passing votes of thanks to Dr. Trestler, and to the Faculty of McGill College, for the permission to use the rooms.

MEETING OF THE NEW BOARD.

The following were elected officers : President, W. G. Beers ; Vice-President, Ed. Casgrain, Quebec ; Secretary, L. J. B. Leblanc ; Treasurer, S. Globensky ; Registrar, S. J. Andres.

ESSAYS, DISCUSSIONS AND CLINICS.

The Board had decided to set the ball rolling, in connection with the voluntary Society, and the outcome was an afternoon of interesting clinics, in the Library of McGill College. Four chairs and the necessary appliances were in position.

2 p. m. J. B. Vosburgh, setting Richmond crown. J. C. Nichol, filling with Watts crystal gold. This was a crown of lateral incisor, built down from root, using automatic mallet. J. Gentles, setting Ottolengni crown on left c. incisor. C. H. Wells, Huntingdon, capping exposed

pulp. G. H. Weagant, Cornwall, Ont., filling with copper amalgam. P. Brown, excavating under N. O. Gas, filling with electric mallet.

The following essays were read and discussed, and one good feature was that they were limited to ten minutes each: "Anæsthetics," by A. Lantier, Three Rivers; "Treating Pulpless Teeth," by J. A. Bazin; "Dental Ethics," by L. J. B. Leblanc; "Celluloid: Is it worthy of recommendation?" by S. Globensky; "Copper Amalgam," by G. H. Weagant; "Dental Education," by S. J. Andres; "Professional Fees," by B. S. Stackhouse.

THE DINNER.

A recherche dinner was held in the Ladies' Ordinary, of the Windsor Hotel, and the table was one of those fairy-land surprises, for which the management of this "finest hotel on the continent" is famous. There are bigger hotels in America than the Windsor. There are none cosier, cleaner, or more comfortable. It was evident that the very suggestion had been a popular one, though it was only a family affair, and no invitations had been extended beyond one to the nearest Ontario licentiate. About fifty sat down to table—Dr. Trestler in the chair, having Dr. Weagant on his right. The registered students were also present.

After dinner, which was made more appetizing by a quartette of musicians, Dr. Trestler proposed the toast of "The Queen and Royal Family," in the following appropriate words:

I have the honour to give you the toast of the Queen and Royal Family, Millions of times this toast has been received with loyal respect in Canada. but it is of special interest to us as Dentists, to think that Her Majesty has personally honored our profession, by bestowing knighthood upon her household dentist, now Sir Edwin Saunders. She has also specially honored Dentistry as a science, by knighting Mr. John Tomes, the pioneer and chief promoter of modern dental science and education in our great Empire.

The members rose and sang "God save the Queen."

"The Governor-General" next followed. Then came "The Army, Navy and Volunteers," to which Capt. Ibbotson, of the Royal Scots Volunteers, replied as follows:

He said he felt it a pride and privilege to respond to the toast, as a member of the Royal Scots. The history of Canadian volunteering was well-known to its friends as well as its foes, and the constitution of the force in the Dominion was something of which, as loyal Canadians, we have a right to be proud. In 1860 and in 1866, at the times of the Fenian *flashes*, our volunteers, who are now proud to call themselves the Canadian Reserves, bore the brunt of duty. Upon every occasion, small or great, the difficulty was that everybody wanted to volunteer. Canadians were not fond of, but they were not afraid of, fighting when the defence of Canadian homes was at stake.

During the last North-west troubles, this was again proved. In two hours after an unexpected notice was given to this Regiment, it was completely and efficiently under arms, and only too anxious to be sent off. In saying what he has said of the Volunteers, everybody knew that in love of land, in the desire to do their duty, and fearlessness of results where duty led them, the Volunteers of Canada were the pupils and imitators of the examples in the Army and Navy of our glorious Mother-Land.

H. Pepin supported the toast as follows in French and English :

Mr. Chairman, and Gentlemen,—It gives me great pleasure to respond to this toast, as a former French-Canadian Volunteer, an old member of the 65th. Professional men, as a rule, have duties toward the public of such an exacting character that they feel they cannot give their time to volunteering, and yet it is a satisfaction for us, as Dentists, to know that our profession has given quite a large number to the rank and file, and that during the Fenian Raids, during the North-west *emeute*, and on other occasions, our confrères did their share of duty to our beloved Canada.

History can tell you how loyally French-Canadians did their part as citizen soldiers in the past.

They will do it again if foes should ever invade our land.

The Empire under which we live has its soldiers and sailors and volunteers on every shore and every sea, but nowhere, in this great Empire, can you find freer men, or volunteers, who have stood fatigue and long marches better than the volunteers with whom I had the honour once to be associated.

I feel proud to respond to this toast, and though I have laid aside the sword for the plugger, I am ready when duty calls again, to serve my country, and leave my patients to the "Home Guard."

Dr. Casgrain, of Quebec, then rose to propose the toast of "The Past and Present Presidents," and speaking in English, he paid a high compliment to Dr. Trestler, who had occupied the chair for the last three years with so much sympathy and genial dignity, and who, he hoped, would enjoy great happiness in the reflection that he had been the friend of every licentiate who desired to respect himself and his profession. He spoke very kindly of Dr. Trestler's successor.

Dr. Trestler and his successor briefly replied.

A. Lantier then proposed "The Board of Examiners" in the following speech in French and English :

Mr. President, and Gentlemen,—In proposing the toast of the new Board of Examiners, we must remember we are toasting the health of men to whose ability and sagacity, we will soon owe a great deal, so far as the Dental Profession is concerned.

It is no easy task to occupy such positions in our profession. We have difficulties to encounter here that are to be met nowhere else in the civilized world. Dentists are attempted to be made by Act of Parliament. We have no Colleges proper for the training of students ; we are conspicuous for the lack of wealth, and we are bounded on every hand by these

pests, called quacks. Gentlemen, we are aware of the difficulties you will have to contend with, and we as accredited members of the profession give you our cordial sympathy ; we will support you in any measures which you may propose to further the interests of our truly humanitarian work. Gentlemen of the Board of Examiners, some of you have already performed services to our profession which are truly praise-worthy : we praise you for your laudable efforts to maintain and increase the standard of efficiency and culture, we must keep abreast of the times, you are to maintain our position in social life and in public life and as a profession. There must be no royal road, save that of a full course of study. We feel that the late Board has been doing efforts in that direction. Doctors require a full course, lawyers require a full course, and why should we be more lenient than they ? We ought to have the full control over those who propose to become dentists. In asking this, we are asking no more than what was granted to us by our Act of Incorporation. But, gentlemen, we realize that your work will not only be beneficial to the Dental profession, but to the general public as well. In saving the public from the hands of incompetent men, in arresting quacks, you are doing public duty and a public service. The public will soon appreciate your efforts ; people do not want to be trifled with, with those evils to which the teeth are heir to, no more than the evils the flesh is heir to. If I see the wish of the public aright, it is, Send your properly trained and recognized men not only in Montreal and Quebec, but also in more humble cities, so that we may be sure of proper treatment. Gentlemen, we look to you for protection in this matter. Leniency in a matter so essential and so vital is almost suicidal. We elected you to this high and honorable position, because we believe you are worthy ; it is because we believe you have the interests of the Dental profession at heart, it is because we believe you are able and willing to lead us on as a body to that eminence, to that success, to that honor and respect which every member of the profession pursues. Do not let us lower our standard, but to-day, as well as always, let our motto be "Excelsior."

He was supported by J. A. Bazin, who recalled the early times referred to by his friend Brewster, when the first attempt was made to get a meeting, and there were only the two of them present. There were then only eight dentists in Montreal. He referred to the growth of twenty-two years, and the hopes for the future.

Dr. Trestler replied as follows :

Gentlemen,—It gives me special pleasure to meet you here this evening in commemoration of the 21st birthday of our professional organization in the Province of Quebec, and to share as your President in the gratification those of you must enjoy, who look back on the past twenty-one years of earnest work as active officials. As has been said, dental organization in Canada was coincident with the birth of our Dominion, and if our statesmen feel any pride in the fact that they were the fathers of a people, we may feel some pride that we were the founders of a profession. Those of you who have entered the profession since its incorporation, can form little idea of the position we occupied, when we were not only a small but an

uninfluential body, without either professional recognition from the public, or our colleagues abroad ; when any uneducated man could hang up his sign as a dentist. Would any of you wish to return to that condition? I think not. It would have pleased me very much, and perhaps have profited you, were I to make a retrospect of our growth from the small beginnings of 1868, when on the 2nd day of September the following dentists of this city met to discuss the proposed organization and incorporation of the profession : Messrs. Bernard, Trestler, Brewster, Bazin, Beers, Cantwell, Alloway. It is an interesting coincidence this evening that exactly twenty-one years ago yesterday, the following dentists met and organized this Association : Messrs. Bernard, Trestler, Brewster, Leblanc, Beers, Bazin, Belle, Webster, Alloway, Nichols, and Valois, of Montreal ; McKee, of Quebec ; Lefairve, of St. John's ; Dowlin, of Sherbrooke ; and Brodeur, of St. Hyacinthe. No one can estimate the amount of thought and attention which the first Board of Trustees and Examiners had to give to organization and labours which were new to them ; but, gentlemen, if the various Boards have never attained that perfection which you expected, it cannot be said that they ever usurped privileges, or shirked responsibilities, and that perhaps no other corporate professional body in Canada has had more constant and annoying battles in the Courts and the Legislatures in defence of those for whom they were trustees.

We have had two difficulties to meet which our friends in Ontario had not—the numerical weakness of our ranks and the dual languages. The cost of managing this Association depends upon a tenth of the number that exists in Ontario, while the cost of printing our documents in the two languages doubles this item alone. Only within the last few years our modern authors have been translated into French, and works accessible to the English have only recently been obtained by the French students. I am gratified to say, that without a single exception, the most complete harmony has always existed among the members of the different Boards.

Gentlemen, it has been, and will always be a very easy task to find fault. It is easier to show in speech or on paper what ought to be done, and what could be done. But it is far easier to plan great campaigns than to win small ones, and there are no ocean sailors, you know, so brave as those amateur yachtsmen who have never seen the sea. Gentlemen, if we were able to tax the profession as our city is able to tax the citizens, we might endow great institutions and do great things, but you are aware that we occupy an honourable and a protected position to-day, and that this is due not to the prophets of disaster, or the timid, but to earnest workers, who, I may say, have never ceased to feel their responsibility, and to do the best our circumstances and our surroundings would permit.

My experience goes away back to a time, when in spite of the absence of organization, and in spite of a fashion of secrecy, there were men in our ranks whose names we should not let die. I recall the names of Spooner, the discoverer of Arsenic for destroying pulps ; Scripture : W. H. Elliott, whose contributions to the *American Journal of Dental Science*, attracted much attention abroad ; Bernard, our first President, and who became Mayor of Montreal ; Vanbuskirk, Jourdain, Webster, Dickinson, the worthy predecessor of Bewster : Bowker, all old practitioners here, Hon. Dr. Baillargeon and

Dr. McKee of Quebec. I recall the names of several of our younger men, Locat, Samuels, Nutter, dead. Gentlemen, when I recall the many pleasant associations I have had with my confreres, both before and since the organization of the profession, I look back on the past with happiness as you may look forward to the future with hope. I feel that when we who have been the founders have passed away, those of you who are to succeed us will remember us with feelings of generous brotherhood, as we remember those who are gone, and that whatever our shortcomings, we did our best for the common good of Canadian Dentistry. Thanking you for your attention, and trusting that as we celebrate to-day the coming of age of this Association, many of you may be spared to enjoy its golden wedding.

Dr. Chas. Brewster in proposing the toast of the "Dental Profession of Ontario," said he felt it a high honor to have the privilege of doing so at the largest gathering ever held of the Quebec Profession. Ontario was the largest Province in the Dominion, it had the largest number of Dentists of any of our Provinces, and occupied politically and professionally the most influential position in the Confederacy. The profession there had the honor of being the first body of Dentists in the world to secure an effective Act of Incorporation. No other State in the world can say it was before them. It may be interesting to recall a bit of professional history not known to more than three or four present. In 1858 he issued a circular to all the Dentists he could find in Ontario and Quebec, asking their opinion of the propriety of incorporating the profession in the two Provinces. He did not know at the time that the two Provinces could not act together in this matter, and we in Quebec were numerically too weak to act alone. However, the result was that favourable replies were received from those to whom he wrote, and the ground broken for the movement, which was subsequently led by one of his correspondents, Dr. B. W. Day, of Kingston, the father of the Ontario dental legislation. In this way, he felt a personal sympathy and identification with the profession in Ontario, and he only regretted that there were not more of the Ontario Dentists present. We have greater difficulties to contend with in Quebec, but from the great unanimity displayed to-night, we may hope that some day we shall have a Provincial College, though nothing should be done hastily. He was glad to couple with this toast, the name of Dr. Weagant, of Cornwall, who had made a good name for himself of more than a local character, and whom we are very glad to have among us.

Geo. H. Weagant replied as follows :

I thank you heartily for the very generous manner in which you have drank the toast of the Dental Profession of Ontario. I thank you also for having coupled my name with that toast so cordially. I assure you that I fully appreciate the proud position in which you have placed me, and consider that you could not have conferred a greater honor than by inviting me to respond. I regret that so important a duty has not fallen into hands more worthy and better able to do the subject, the justice it merits. I feel that I can say but a small portion of what ought to be said on the subject. I even feel guilty for having accepted the invitation to respond to this toast, and were it not that the honorable position of being the representative of such a body of men as the Dentists of Ontario has filled me with a cou-

age which I would otherwise consider to be foreign to my nature, I think I should be inclined to resort to ignominious flight. "Speech is silver, silence is gold," and I am going to use gold to-night as a filling material. However, like all of you, I love my profession, and I love my country, and were I able to express the hundredth part of what I feel, my eloquence would occupy the remainder of the evening. You may be thankful that I cannot inflict so great a misfortune upon you. I might tell of the struggles and difficulties which the pioneers of Dentistry in Ontario have been able to overcome, of the results which they were enabled to accomplish, and which I am proud to know have not been altogether profitless. I might, like my friend and preceptor, Dr. J. B. Willmott, at the meeting of the Ontario Dental Society this summer, relate to you all the details of the conception and birth of Dentistry, as a profession, in Ontario. How faithful and loving hands nursed and tended it through all the ills which an infant of that kind is liable to receive; how they guarded and guided it in its boyhood and watched with parental pride its growth and development through youth to manhood, and how, upon arrival of its majority, provided so rich an inheritance upon its birthday affiliation with the University of Toronto; that all true-hearted Canadians, whether of Ontario, Quebec, Manitoba, or any other Province, unite in a feeling of just and natural pride in an event which cannot fail to tend to the elevation of the professional standing of every Canadian Dentist. It is the custom with Dentists in speaking of the history of our profession, to endeavor to trace the origin back to very ancient times. They even disturb the old Etruscans, Phœnicians, and Egyptians in their graves, and would if they could, go back to the time of our mother Eve, who, no doubt, had her teeth set on edge eating the apple, but I tell you there men now living who can look back to the origin of Dentistry as a profession. An eminent Dentist has said that the rapid advance of Dentistry during the last 20 or 25 years is due to the following four causes, viz. :—Dental Societies, Dental Schools, Dental Literature, and Dental Laws. The Profession of Ontario is especially fortunate in the possession of these four powerful forces. We have two flourishing associations— a School of Dentistry, which in point of thoroughness, need not take a back seat with any other institution of the kind in the world. We have a Dental law, and lastly, thanks to the enterprise, energy, genius and zeal of our friend, Dr. W. Geo. Beers, who although practicing in Quebec, I am glad to claim as also an Ontario licentiate, we have a Dental Journal,

Numerically the Dentists of Ontario are stronger than all the other Provinces of the Dominion, and naturally should take the lead in all changes which are calculated to advance the Profession. I trust that before long we shall see our way clear to a system which will break down all barriers which at present stand between the interests of the Dentists of the different Provinces of Canada. A system which will unite the different educational institutions and which will allow a Dentist of Ontario to be as good a Dentist in Quebec as he is at home.

The object of our Dental laws is to have men who enter the profession especially fitted for its intelligent practice, by education and a thorough training in a Dental College.

There is a general feeling among the majority of the Ontario Dentists that the present method of electing a Board is an unjust one, and gives too great power to the minority. Most of the Dentists are unable to attend the meetings called for the purpose of election, every other year, and those who do not attend have no voice in the meeting. The consequence is that out of the four hundred dentists, there are often only about sixty to conduct the business, not at all a representative member. It has been suggested that some method of election through the mails would be advisable.

A. W. Hyndman, Sherbrooke, proposed "The Dental Profession of Quebec," briefly referring to the time when every Dentist or would-be dentist, was a law unto himself.

W. Geo. Beers replied.

Geo. W. Lovejoy proposed the toast of the Secretary, and spoke of the devotion that official had shown, and of the difficulties in Quebec Province of such a position. There was not another man in the profession who could do better, if as well as he had done, and he hoped the members would support him, as almost every day he had to work for them,

L. J. B. Leblanc responded, touching very modestly upon his position.

S. Globensky gave the toast of "The Ladies," in a neat and witty speech, to which F. A. Stevenson and J. E. Mauffette made clever replies—the former in English; the latter in French.

"Auld lang syne" was then sung alternately in English and French, with linked hands, and "God save the Queen" closed the meeting. During the evening, Messrs. Bourden, Bourbonnais, Lantier and Larose, gave vocal and instrumental selections.

Our Canadian College.

The announcement of the R. C. D. S. for 1889-90 came to hand not long ago. Several important changes in the curriculum of the college have been made. Hereafter no certificate will be accepted for matriculation which does not include an examination in Latin, and students will be obliged to spend three full years in the study of dentistry, during which time they must not be engaged in any other occupation or calling.

The honor examination heretofore conducted by the faculty during the last week of the session has been discontinued, and with it has gone the faculty gold medal which has been so keenly contested for from year to year. The expediency of giving medals and prizes to students under any circumstances has been often called into question, and as the University will confer honors in connection with its examinations, it may be that the

necessity for a special honor examination has passed away. Still the competition for the faculty medal had a very stimulating effect upon the more ambitious students, and there are, no doubt, some who regret that they will not have a chance to compete for it. The college gold medal will be given as usual to the candidate receiving the highest number of marks for practical work, and a silver medal to the candidate receiving the second highest number of marks, and the competition for these will no doubt be very keen.

Every year the announcement contains a paragraph headed "Museum," stating that the directors and faculty are desirous of forming a collection of pathological and other interesting specimens, and earnestly requesting licentiates to forward such specimens as they can spare. There is something very pathetic in the statement so often repeated, that they "are desirous of forming a collection." Why doesn't someone send them a lower molar with three roots, or a fibrous tumor preserved in alcohol, so that they can say that they have *started* a collection? Few dentists have specimens which they consider valuable enough to *start* a museum with, but if they knew that a small collection was already formed, and that the faculty would be grateful for every donation however small, they would be more likely to contribute.

The students too, might do much towards forming such a collection. They wonder why it is that a collection has not been got together by some one else for their benefit, but they never think of bringing specimens from home and starting a museum themselves. It is true during a recent session the students did set aside a part of the laboratory for a museum, and placed therein the college vulcanizer, a worn out flask with broken bolts, several plaster casts, a handful of extracted teeth, two or three specimens of dental advertising, and a piece of sand-paper one and a half inches square, generously donated by the demonstrator. These were to form the nucleus of a collection, and all would have been well had it not been for the janitor, who, that very same night, returned the vulcanizer to its place and threw the rest of the specimens out of the window. It is needless to say that the dejected students made no further effort to establish a museum that session.

Now, if the students were to take the matter in hand, one would think they could collect enough specimens in Toronto alone to form quite a respectable collection. Almost every dentist would be able to contribute something, and each student could, no doubt, bring something with him from the office of his preceptor. By this means a museum could be started, and once started, there is no reason why it should not grow rapidly. Let us hope that before the next announcement is issued, the long-felt desire of the directors and faculty will have been gratified.

Editorial.

Volume Two.

No rash promises were made in No. 1, none will be made in No. 4. We have every reason to be satisfied with the general support of our own brethren in Canada, and our many good friends over the border and over the ocean. We have given more in the way of illustrations and pages than we promised. If we should do so again, it will be in response to prompt remittances. Volume two will appear as a quarterly. If you have not paid for vol. one, it would be timely to send two dollars, to include vol. two.

THE NEXT NUMBER —Will be of more than usual interest to Ontario Dentists. We invite contributions for it specially from our Ontario friends, no matter how brief: practical hints even of a few lines will be gladly received. There is not a practitioner in Ontario but could help us if he tried.

The Porcelain Dental Art.

We received so many inquiries from our subscribers in the different Provinces, with reference to this new introduction to the *repertoire* of the Dentist, that we determined to satisfy our own interest as well as theirs, and examine into the matter. After two visits to headquarters, we have no hesitation in expressing the conviction that it is the most important reformation in operative practice since the introduction of the rubber-dam, and that it has such an infinite variety of applications, and commends itself so much to the want of patients, that it must become indispensable. Of course, it would be more agreeable to us if there was no patent, but this question has two sides. We are every day using implements and materials, and unconsciously paying ten times their value or cost, just because the manufacturer has to pay heavily for the privilege of making and selling them. If any one chooses to patent an article we need, there is nothing stronger than our ethical laws to punish him, but it does seem sad encouragement to ingenuity or genius, that men like Barnum, who introduced the rubber-dam, should die poor. At any rate, the Porcelain Dental Art is well worth having; in fact, it must be had, and it is well worth paying for. In the next number we will give important details, illustrated, together with impartial experience.

Correspondence.

To the Editor of the DOMINION DENTAL JOURNAL:

Dear Sir,—It has recently come to my knowledge that an individual, by the name of Bell, has been visiting the Dentists of Ontario, selling a "Local Anæsthetic," and using my name as having purchased it, and speaking in the strongest terms in its praise. It is only fair to myself to say that Mr. Bell has not called on me, nor have I seen him or had any communication with him whatever. I know nothing of his nostrum, but, from the fraudulent manner in which he is using my name and the names of other prominent Dentists, to assist in its sale, I would infer that it is probably as great a fraud as its vendor.

Yours truly,

Toronto, Sept. 16th, 1889.

J. B. WILLMOTT.

Fees in Canada.

To the Editor of the DOMINION DENTAL JOURNAL:

Dear Sir,—I felt much personal interest in the article in your last issue by "Ontario," and it is painfully evident that Dentists in this country, who give the best of their skill and knowledge to their patients, do not receive that compensation, as a rule, to which as professional men they are due. It is true that industry brings success, but what sort of success? Rarely more than a very ordinary living. "Ontario" puts it very clearly when he shows that our labor is exhausting, inducing cerebral pressure and nervous exhaustion: and I would add that if this justifies us in expecting the ordinary substantial comforts of life, it justifies us in expecting the very luxuries of life, and the ability to give our sons and daughters the best education, without shoving them into the world half-fledged.

Let me urge this consideration as a Dominion professional question: that of charging for consultations. It would be a very easy thing for local dentists to agree on this one point at any rate. It is a misnomer to call Dentistry a profession if our experience and advice is given gratuitously. Without advising extravagant fees, I feel that the whole profession ought to take a few steps up the scale, and that the discussion of this subject ought not to be tabooed in our conventions. During my residence in Ontario, the cost of living was increasing as the fees were lowering. We have not yet much to boast of in the way of an advance in British Columbia, but I expect to see the day soon when Victoria will lead any city in Ontario or Quebec in this matter. Yours truly,

Victoria, B. C.

PACIFIC.

Reviews.

THE PROPHECY OF MERLIN AND OTHER POEMS. By John Reade. Among the "Miscellaneous" in this number we publish a gem from this book of gems. Canada has many sweet singers and John Reade's verses can never die.

SONGS OF THE GREAT DOMINION. Voices from the Forests and Waters, the Settlements and Cities of Canada. Selected and Edited by Wm. Dowse Lighthall, M.A., London. Walter Scott, 1889, Toronto and Montreal. A delightful-book for the dentist's table, gathering into a rich cluster over four hundred and fifty pages, comprising selections from Canadian poets on : 1. The Imperial Spirit. 2. The New Nationality. 3. The Indian. 4. The Voyageur and Habitant. 5. Settlement Life. 6. Sports and Free Life. 7. The Spirit of Canadian History. 8. Places. 9. Seasons. We are sure that any Canadian who buys this book, will go back to it a score of times in a year. It is full of verbal music and inspiring nationality. It is a book that ought to be in the hands, the heads and hearts of every lover of his or her country. It ought to be introduced into our schools and colleges.

DENTAL CARIES, AND THE PREVENTION OF DENTAL CARIES. By Henry Sewill, M.R.C.S. and L.D.S., Eng. Second Edition. London : Bailhere, Tindall & Co ; Montreal : E. M. Renouf, St. Catharine Street.

We have seldom, if ever, been more interested in any manual that has appeared in our Dental literature, than this little book, of 93 pages, which is not only a work of more than usual ability, but has, perhaps, no equal as a condensed model of dental literary composition, that would bear much amplification. Those who are familiar with theories, borrowed to some extent from Bell, who compared caries of the teeth, which begins in the hard part of the tooth, with caries of the bones (ostitis) which begins in the soft parts, and who described the former as an inflammatory process in the bony structure, will understand the argument of Mr. Sewill, from the following extract which, in itself, is an epitomized model :

"Caries is a process of disintegration, commencing invariably at the surface of the teeth, proceeding inwards, and due entirely to external agents : enamel and dentine are passive under this process of disintegration, and manifest neither pathological action nor vital reaction of any kind. By pathological action I mean : (1) morbid changes in the tissues induced or produced by the influence of the vascular and nervous system : and (2)

morbid changes in the tissues, in which changes vascular and nervous influence, may, perhaps, have no share, but which are not produced by external agents. By vital reaction, I mean any change in the tissues not solely induced and produced by external agents."

The author establishes the truth of this definition on anatomical grounds, and shows that enamel and dentine are not capable of pathological action—that it is "inconceivable in enamel, and hardly possible in dentine." Mr. Sewill is not half so unmerciful to those whom he opposes, as other honest critics, well known to us, on this continent are to each other, but his trenchant pen is unsparing when he throws on them ridicule with his facts. "A man who can speak of inflammation of enamel and dentine, or of retrograde metamorphosis of those tissues, must indeed, in a like fashion, believe that anatomical fact may be carried too far, and that it is better to rely sometimes, not upon facts, but rather upon the phantasm of a vivid imagination."

We purposed giving our readers a more extended review of this important little book, which we are glad to learn, will, with the author's valuable work on Dental Surgery, have a new edition, but the necessity for this is very agreeably removed by a contribution forwarded us by the author, in reply to some of our past convictions, and which appears among our Original Communications.

We have found this book of such absorbing interest that it has been carried with us a dozen times as a choice companion. It has been a luxury to return to it. It not only gives one the enjoyment of new ideas, but it suggests others, and its language is far removed from that sort of mystification and verbal murder, too prevalent in many of our dental associations, by men who sacrifice sense to efforts at originality.

A STATISTICAL INQUIRY AS TO THE RESULT OF THE IMMEDIATE TREATMENT OF PULPLESS AND ABSCESSSED TEETH. By Geo. Cunningham, B.A., D.M.D., Cambridge, England.

Should the roots of pulpless or abscessed teeth be ever treated and filled at one sitting, irrespective of their previous conditions? Not every practitioner is competent to give an answer, because not every one has proceeded upon the statistical method employed by Dr. Cunningham. There are lots of people who believe that one swallow does make a summer, and who fancy that one or two successes make failure in all impossible.

At the Washington Congress, Dental Section, 1887, the author contributed one of the most valuable of all the communications, which provoked inter-

esting discussion. He had advocated immediate root-filling in 1886, at the British Dental Association. In 1884, Prof. Hesse, of Leipzig University Dental Institute, was the first to recommend this, as opposed to the Dressing method, and gave statistics of his own experience, and after Dr. Cunningham's paper in Washington, he wrote a letter stating he was in complete accord with his views, and that "Method rather than medicine, had a great deal to do with results." On this continent, Dr. Ottofy, of Chicago, is one of the most ardent advocates of immediate treatment, though he emphasizes the objection to its application in the cases of patients of lymphatic, anæmic, or otherwise sluggish constitutions.

Dr. Cunningham's method may be briefly described: 1. Free access to all roots, without any compunctions as to the crowns. 2. The use of the rubber-dam. 3. Reaming out the root canals with nerve drills in the dental engine, as far toward the apex as is deemed safe, and he recommends the "Morey" flame-headed drill, as supplied by the inventor only. 4. Ingestion or application of mercuric chloride-chloroform as a cleanser. 5. Zinc oxychloride for filling the roots, carried on cotton shreds into the finest parts of the canals, leaving the canals wet to facilitate penetration of the material.

The author classifies the cases in which immediate root-filling is applicable as follows:

Class I. Where the pulp is removed by extirpation or devitalization.

Class II. Where a fistulous opening indicates with certainty the presence of an apical abscess.

Class III. Where the pulp is dead without an actual or obtainable sinus — *i. e.* all cases belonging to Classes I. and II.

Contrasting the relative advantages of the Dressing method as compared with the immediate method of treatment, the author forms the following conclusions:

1st. That under the immediate method, there were fewer extractions and failures.

2nd. That there were fewer subsequent attacks, accompanied by swellings, and acute abscess, and therefore the immediate treatment was attended with less pain.

3rd. That it required a considerably less expenditure of time, on the part of both the patient and operator, the average time of treating and filling such teeth, being considerably under an hour.

4th. That in consequence of these considerations, we were able to treat, and able to save more desperate cases, many of the cases mentioned in the record having large perforations of the roots, while others had been already condemned by other practitioners as utterly hopeless.

5th. That method, rather than medicine, had a good deal to do with the results, and that probably the operator, would have succeeded equally well, in a very large number of cases, without any medicine whatever.

6th. That from the difficulty of diagnosing such cases, it is better to conduct every operation with antiseptic precautions."

Miscellaneous.

WE learn with regret of the death of Mr. Chas. Spence Bate, F.R.S., L.D.S., of Plymouth England, on the 29th July last. He was one of the leaders in dental reform in England, and a valued member of the British Dental Association. At the time of the meeting of the ninth International Medical Congress in Washington, he paid Toronto and Montreal a visit.

THE Rev. John Ward, who was Vicar of Stratford-on-Avon, from 1648 to 1679, kept a diary from which the following extracts are made : " Upon a signe about Fleet Bridg this is written, ' Here lives Peter de la Roch and George Goslin, both which, and no other, are sworn operators to the King's teeth.' " ' There are several sorts of physicians, said one : first those can talk but doe nothing ; secondly, that can doe but not talk ; thirdly, some that can both doe and talk ; fourthly, some that can neither doe nor talk, and these get most monie."

WHAT CAN I DO ?

" What can I do that others have not done ?
 What can I think that others have not thought ?
 What can I teach that others have not taught ?
 What can I win that others have not won ?
 What is there left for me beneath the sun ?
 My labour seems so useless, all I try
 I weary of before 'tis well begun ;
 I scorn to grovel, and I cannot fly."

" Hush ! Hush ! repining heart ! there's One whose eye
 Esteems each honest thought and act and word,
 Noble as poet's songs or patriot's sword,
 Be true to Him : He will not pass thee by,
 He may not ask thee 'mid His stars to shine,
 And yet He needeth thee, His work is thine."

Montreal.

JOHN READE.

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J. B. WILLMOTT, L.D.S., D.D.S., M.D.S.

DOMINION DENTAL JOURNAL.

VOL. II.

TORONTO, JANUARY, 1890.

No. I

Dr. James Branston Willmott.

We are quite certain that no one will be more surprised to see his counterfeit presentment in this Journal than Dr. Willmott himself; but we need not say that it is a very great pleasure to us to be able to give our readers the portrait of one who has no peer to-day as a real hard worker and representative dental education-alist in Ontario.

Dr. Willmott was born in Halton Co., Ontario, June 15th, 1837. His parents came to Canada from England when quite young. After living a few years in Toronto (then called Little York), they removed with their parents to the central part of Halton County, where they did, faithfully and well, their part in converting the wilderness into a fruitful field. Dr. Willmott had the good fortune to spend his early years on the farm: obtaining his education at the public school. In 1854-55 he was a student at Victoria College, intending to take the University Course in Arts, but he was prevented by failing health. In 1858 he entered the office of Dr. W. C. Adams, as a student of dentistry. In 1860 he began practising in the Town of Milton, near his birth-place. He allied himself with the Liberals in politics from profound conviction, and naturally made foes as well as friends, but no one ever doubted his honesty. He took an active interest in the affairs of the town, and was soon called to a position of trust. In 1863 he was appointed a Justice of the Peace. Besides minor offices he was for three years a member of the Municipal Council; two years of that time,

Chairman of the Finance Committee. In 1870 he attended the Philadelphia Dental College, graduating in March 1871. Although a foreigner there, he was chosen by his classmates to deliver the Valedictory on "Commencement Day." In July, 1871, he removed to Toronto. In 1876 he was actively engaged in the movement, to place the Dental Profession of Ontario on a better footing, which resulted in the incorporation of the Profession as the Royal College of Dental Surgeons, of Ontario. In 1870 he was elected a member of the Board of Examiners, and, on the organization of the Board, its Secretary, and was re-elected each triennial election. In 1875, the dentists of Ontario met in convention and adopted a resolution requesting the Board to establish a Dental College in Toronto. The Board requested Dr. Willmott to undertake the organization of the College, associating with him L. Teskey, M.D., M.R.C.S. The first session opened in 1875, with Dr. Willmott as Senior Professor, occupying the Chair of Operative and Mechanical Dentistry, which position he continues to hold.

The Doctor is a devoted man in church work. Born of Methodist parents, he, in early life, became a member of the Methodist Church and has filled nearly every office open to a layman. Soon after settling in Toronto he connected himself with the Metropolitan church, and has been deeply interested in its prosperity. He now discharges the duties of Bible-class teacher, leader, trustee and treasurer of the Trust Board, besides being local treasurer of several important conversional funds; was a member of the Toronto Methodist Conferences in 1885-86, and of the General Conference of the Methodist Church, which met in Toronto, 1886. In September, 1864, he was married to Margaret Bowes, niece of the late J. G. Bowes, ex-Mayor of Toronto.

To Dr. Willmott's untiring energy the Profession of Ontario owe the proud affiliation with the University of Toronto, and the fact that the first degree of D.D.S. ever conferred in the British Empire was conferred at the April meeting last year. No man can occupy prominent positions in any profession, without being misjudged. Any man who succeeds in satisfying everybody may make up his mind that his work will not endure. Dr. Willmott has had to face many difficulties and some of the prejudices which are sure to meet every pioneer, but he has faithfully served his generation, and has given a stamp to dentistry in Ontario, which no honest practitioner would like removed.

Original Communications.

Combination Fillings and Eclectic Practice.

*By W. R. PATTON, D.D.S., Cologne, Germany.

The following was read before the A.D.S. of Europe, in Baden-Baden, in 1878, and I am happy to say that the views expressed then, have worked their way slowly to the front, and to-day are known under the popular title of "Combination Fillings." We have arrived at this result through an enforced eclecticism in our treatment of teeth, by grasping at, and making use of every material offered to us, in our vain efforts to prevent decay, and preserve the organs confided to the care of our experience. Ten years is a fair time in which to decide the important query: Have we gained greater knowledge in this time to enable us to save more teeth than in 1879? Are more teeth saved, comparatively, to-day than formerly? Let each individual practitioner ask himself these questions, and answer them for his own satisfaction.

Every man knows where he has failed, so let him try again, and try something else than that in which he has failed, and find out new results as beneficial or otherwise, until he develops a natural eclectic knowledge of the manner and material he will use, according to the case. This can only take place with surety when the patient is a regular visitor, and one has time to note the permanency of the filling material used.

My experience of the last ten years, with, as a general rule, a bad class of teeth, is that the Combination-filling is the most permanent, and they have been as follows: Gold and amalgams (gold and cement), amalgam and cements, tin and amalgam. You will wonder at my not including tin and gold. The simple reason is, that after experimenting quite a time, I finally came to the conclusion, through results, that gold and amalgam had the same effects with a more perfect possibility of manipulation.

*I merely wanted to demonstrate by reading this paper (written ten years ago), that the present system of combination fillings, which is being so much advocated now in American Dental Journals, is nothing new, but has been there before and the system followed for years here in Europe.

I hold the oxychloride cements, and the oxyphosphates, as the acme of filling material, if it were possible to prevent their erosion, and in so many cases chemical dissolution; but herein comes the eclectic point—combine! Why should a deep cavity be entirely filled with gold, or even amalgam? It has been, or is, my prevailing practice to fill in 95 cases with cements, and cap the cavities with gold, amalgams, or both combined.

No operator can make as close a connection with the walls of a cavity with any non-adherent material, as he can with the plastic advantages of cements. A child could learn it!

Let the operator use his skill in preparing that cavity, with as little loss of material as possible, and he will find the filling of it in this way, child's play. Let the cement be capped to defend it, and you have a constituent underneath which holds the parts together, and here let me add, that cements should not be used too doughy, but soft and sticky, so that they will stick to the walls of the cavity and adhere there. Let the same care be used as in the use of all gold above, and the result is better. Take a so-called shell, merely the enamel coating so to say, standing as a ruin, carefully scrape the soft layers of dentine away from the interior, and plaster it up and around the walls with quite soft cement; let it dry and harden, then repeat, and leave enough room in the centre for anchorage, and carefully take away the cement from the margins and root-edges, and cap nicely over with *soft* amalgam. I say *soft* expressly. Soft amalgam does not, in my experience, contract as much as *dry* or hard-pressed. The shell will not discolor, and the work will do good duty for even longer than the most sanguine could expect.

The combination of gold and amalgam is, according to my experience, one of the best filling materials we can resort to. The combine appears to benefit each other in a preservative sense. Dentine, under this combined material, does not give way, as in the use of each separately; if this depends on a galvanic or electro-development, I leave to science to determine. I can only vouch for resulting facts, and those benefits. My principle is to fill with gold wherever that part of the tooth is visible, to evade darkness of color, and fill in the rest with amalgams, of qualities according to case. For example, a proximate-cavity in a central incisor—The labial surface from underneath with gold and the lingual with amalgam; when polished later, you have the appearance of a gold-filling from the superior side, and the inferior dark but invisible.

The same treatment for bicuspid. The buccal surfaces with gold, and the lingual with the gum margin, with amalgams. If the teeth are hard, use hard amalgams, containing (or supposed to) more silver and some gold. If the teeth are of a soft character, then amalgams of tin and copper amalgam. I could enumerate innumerable cases where combinations are of value, but I have taken up too much of your time, and will close with the hope of hearing later of still greater development in this direction, when a *false shame* has been conquered, and practitioners will own up to having *patched up their own failures*, and even by that means preserved teeth, comparatively, for the suffering patient.

When the time arrives when Dental magazine recorders will give us their real daily practice, and not rush to press with the *extraordinary*, I fancy more benefits will be gained by our fraternity at large, than that of competing with the yarns of the angler, whose reputation is so unenviable.

Failure leads to success, and nothing succeeds like the latter.

"Among the disadvantages of a young man of our profession, when writing his ideas regarding any of the many subjects inviting close attention and subsequent thought, stands predominant his fear of being looked upon as conceited, and his crude observations be lost on his hearers, under the damping verdict of inexperience. In this connection I must plead guilty to a feeling of depression when noting the few remarks I have to make on this subject—and which I have consequently made as concise and unobtrusive as possible—through the fear of being gobbled up by some distinguished scientist in dental theory, to detail the conditions of the fluids in mouths where I would fill teeth in a certain way; whether the exciting causes of caries in these cases might be *chemical, vital, chemico-vital, parasitic-electric or galvanic-electric*, etc., which is exactly what I am thoroughly incapable of doing, and when I read—to quote the language of a prominent writer, that "the pulp-vessels should be charged with negative electricity, the normal pulp with positive electricity, but, in a pathological state, the surface of the dentine as well as the roots would be charged with negative electricity," etc., my nervous system receives an electric shock, which pervades me with an indescribable feeling of meanness when I recognize that *I* cannot discover the exact state of the tooth I am to operate on, in this connection, so as to arrive at that great goal—the *infallible filling*.

The writers on the *electro-chemical action*, and all the other theories, having discovered the enemy, shouted—and how have they shouted, *an alarm!*—do not retire and arrange as practicable a specific defence as possible in the first place, and then, secondly, an attack against the encroaching foe, but are so entirely dismayed at their own discovery, which they so diligently impart, nevertheless, that confusion arose in the main body to which they belong. This, in its turn, panic-stricken as it were, immediately divides into factions of extremists. Thus, weathering the general defence—and we all know that a party divided in itself must fall—such appears to be the state of affairs amongst us since an eminent practitioner and others discovered the undermining enemy and retiring in dismay—returned, bearing their horns before the hitherto strength of dental practice, expecting the walls of the most progressive specialty of the century—walls founded in gold through educated ability—to crumble away as the walls of biblical history, in order to be built anew in plastic materials.

Those who run into one extreme are accountable for the folly of those who run into a contrary—so the printed words of Dr. Flagg, in vol. 20 of the *Dental Cosmos*, 1878, where he states in italics:—“I have not used one sheet of gold-foil for almost two years, and have sailed for the last seven months with ‘no gold used’ on my appointment cards”—is an extreme statement from a gentleman of his capacity and position, liable to have caused, and to still cause, an indefinite amount of corruption in the core of our profession, particularly among younger members, who look up to and expect to learn maxims of wisdom from men of such experience.

We must always appreciate the electro-chemical theory, if only that it has drawn the attention and skill of the “gold-or-nothing” operator to the value of filling teeth with something other than gold. The relative work of the experiments made to demonstrate the electro-chemical theory is yet far from being open to objection. It may be conducive to dental science to experiment in the laboratory, but I do not think such experiments are conclusive, when we consider the innumerable changes in the fluids of a living organization, besides the changes in temperature in the oral cavity (F. 98°6' natural), which cannot be directly recognized in every case so as to diagnose the best practical result. I believe it impossible to obtain the same conditions out of the mouth as in it; the destructive agents used out of the mouth always affect the enamel

most and in the mouth affect it least. When distinct rules are given (if that will ever be possible) through such experiments, to repel the ravages so easily discovered, but not more easily combated to-day than previously, then will I become also an extremist, and lowering my flag to Dr. Flagg, shout: "*Le roi est mort—vive le roi!*"

Any man with ordinary common-sense (and this kind of sense is anything but a common virtue) has filled and fills teeth in his attempts to resist decay, in the same manner as the original "new departure system," though he does not throw such an important filling-material as gold is in educated hands, at the same time overboard—thousands of teeth can be shown, most effectually resisting further decay through gold, and thousands also can be shown where other materials, plastic, etc., are effectually doing the same purpose.

The total condemnation of one material or another can only be founded on bigoted error. Gold, in *certain* places, is the best of filling materials; amalgam and other plastic preparations, in certain cases, are as "good as gold;" whereas, in other certain cases, amalgam and other plastics are of use to the dentist, where gold is a "delusion and a snare," and still in other varieties the plastic is better, in fact the best of all materials, but in connection with gold, so that we see without the one or the other we are literally nowhere, and where that is—as Dr. Atkinson would say—"only God-Almighty knows!"

The prevailing eulogism, "he is a first-class operator," refers only to a man's capacity to use gold, and has kept hundreds of first-class men, through the exclusive mechanical use of this material, from devoting their energies to a development of other substances of as great a value to dental science—besides evading the mental strain and physical exhaustion suffered by the patients, and especially by the operators themselves.

Speaking with a N. Y. dentist, of reputation as a conscientious operator—who was travelling to build up a broken-down constitution—in a conversation on this subject, he replied to one of my queries, "Why am I done up, simply by the wear and tear of a first-class operation—by putting in difficult fillings in inaccessible places?" As to my query, "Why," he replied, "I must keep up my reputation!" I may have observed that he, in addition, made a remark to the effect that he had "conscientious doubts if the work

he gave so much labor to could not have been done sooner and better otherwise."

Has not this same idea, carried out, been for some years the cause of keeping active minds from other means and remedies, which could have allayed much physical suffering to our patients, even under mere manipulation, and kept the operators themselves from a more extended and accurate observation of other filling materials? The tendency of this paper is not in any way that of gold *versus* plastic; but I cannot evade putting the question, "Have *plastic* fillings had the same trial, *in all cases*, in the same manner as gold? Would not plastic fillings probably show as good an average of *benefit given*, if their use was not always to a great extent considered *derogatory*, and principally used when we could not use anything else?" If certain plastic fillings are resorted to for frail and diseased organs, in order to save them, can we not logically reason that they will save organs that are otherwise, comparatively speaking, strong and hardy?

If we take the two most prominent filling materials now in general use, Gold *versus* Amalgam, the former used through educated hands, the latter through uneducated use, then this difference, notwithstanding, and principally on account of the want of a general educated use of both; I have no hesitation in saying, that, as many or more teeth, though often unsightly, have been preserved to their owners through amalgam than gold.

Is it necessary that patients should regard such plastic fillings as *inferior*, and that an operator fills a cavity with the poor (?) article in order to *save* it, at the same time informing his patient that it is "not worth gold," and time shows the frail organ still on duty; while a neighboring effort that caused much more patience and energy to deck in glittering garment of gold, must be patched up, renewed, restored, or something of that sort. And with what? Generally with amalgam—the poor cinderella of filling material! Is it not true that, for the proud privilege of being first-class and doing everything in gold, labor and time are sacrificed when certain definite kinds of teeth, and certain definite cavities in teeth, could be better manipulated with another material.

Inefficiency and unskilfulness need not be attributed to those inserting plastic fillings, for where the more conscientious effort is smiled at, the more successful will be the results attained. When and where to fill, what to use and how to use it, are the principal

points demanding judgment of an educated dentist. Extremes have ever proved valueless, but by listening to the arguments of both sides, he, by civil observation, proves the safest man, who accomplishes solid enduring work by an eclectic use of that which is good, or seems good, to his understanding.

After these few, and I hope, concise remarks, I will state where, in my opinion, there are places where plastic work is superior to gold as filling material; under plastic, I consider amalgams, gutta-percha, pure; and in its various combinations with other substances to harden it; Paul, Sons & Rastaing's cements first, and those under other names secondly.

About the first opportunity I would find when I would look around and think of what I could best use for my purpose, and in the hope of doing something permanent towards a probable successful result, would be, when I have cavities to fill which are *difficult of access* (here the cavities were demonstrated on the blackboard). According to case, amalgam and gutta-percha. Then dilapidated teeth "not worth gold?" Cement here is nearly useless, most every one understanding what such cases mean.

Young patients with perceptibly poor constitutions—teeth frail and badly decayed: gold and amalgam, tin and amalgam, gutta-percha. Teeth of defective tissue, called "chalky": gold and amalgam, tin and gold (amalgam in combination with tin, which latter should be laterally pressed to the walls of the cavity between the amalgam and dentine).

The deciduous teeth, when amalgams, gutta-perchas and cements are mostly preferable to gold.

Soft teeth, where one simply diagnoses that fillings of any kind are least likely to preserve, do. do.

Large-crown cavities, with only enamel walls standing, fill with cements and capped with gold, tin, or amalgam.

Cavities in teeth far below the margin of the gums, in every case with amalgam; if portions protude over margin and look dark, cut away subsequently (when hard) and replace top portions in gold.

Woman's teeth, during pregnancy, on account of softening of substance and later replacement.

Teeth of nervous persons of weak organization, incapable of supporting any lengthened operation.

Those cavities on the necks of teeth, where plates having been upheld by pressure of margins or thorough clasps, we find enamel

dissolved, and underlying dentine generally softened to a gelatinous condition: amalgam and gold, and amalgam and tin and gold.

Front teeth, for sake of appearance, where too large fillings in gold, or any other metal, serve to draw the attention of the public to the defective state, inlaid portions of porcelain teeth, Rastaing & Doulson cements, Davis' gold (a gold formerly used, of a very light straw color); and finally, I would fill with amalgam and the other plastic materials, where I thought they could be of use, to suit the cavities in those teeth—abounding so numerous in the mouths of "poverty;" in those cases, gentlemen, good deeds in amalgam are better than gold, when you have no time to afford the latter for sympathetic charity.

These are a few of the conditions and places where I conscientiously would prefer plastic fillings as superior to gold. Where one evades the necessity of taxing the patient and himself to a complete exhaustion, through operations in gold of unusual magnitude and extreme length, and which often finally leave a doubt—a cringing doubt in the minds of conscientious men, if he has really benefitted his patients in accordance with the Hercules-like manipulation necessary to such work.

The dentist may earn his bread by the sweat of his brow, but I do not think he is justified in making his patient the victim of unnecessary suffering, and then sweat his purse for the sweating undergone by both.

If the teeth of civilization are yearly degenerating, then more means must be sought, for resisting their decay, than the sole mechanical use by one material, viz.: gold, applied in all cases and conditions.

If we aim to relieve suffering and prolong the use of organs necessary to a healthy being, then searching for cause and observing effect, we must break the bands of established usage and teaching and treading our way over new fields of extended and accurate observation, we may arrive at a goal, where we will find that our efforts in "plastic" models for the great monument "Preseveration," may later be petrified into the permanent marble of success.

Choice of Material for Filling.

BY W. A. BROWNLEE, L.D.S.

This subject is one full of interest to the operator and importance to the patient. In considering the subject we must take it for granted that the patient has put himself into our hands for treatment: expecting the dentist to perform such operations as are necessary, with the greatest skill, and by the use of the best filling material.

In general practice our hands are often fettered by either the economy or choice of the patient, and to this we may attribute many failures in filling which might have been obviated had the choice of material been left to the superior knowledge of the dentist.

We have no filling material to which we can apply the name "Perfect," and, therefore, we must select from such as we have, the most suitable for any given case, or particular class of teeth, considering also the condition of the cavity to be filled.

To merit the name "Perfect," a filling material should be the same color as the tooth to be filled, a nonconductor of thermal changes, easy to introduce, easily adapted to the walls of the cavity, capable of resisting the dissolving power of the fluids of the mouth, capable of bearing the same amount of pressure as tooth tissue in the same position, should adhere tenaciously to the walls of the cavity and not shrink, should not be liable to cause any physical disturbance, and capable of taking a high polish.

In order to choose a filling material we must first ascertain the condition of the tooth to be filled, the position of the cavity, and conditions of the fluids of the mouth.

Teeth are either temporary or permanent, and all teeth of either sets may be included in two classes: 1st, hard, dense, or well calcified teeth; 2nd, soft teeth: which will include such as are deficient either in lime salts or animal matter. The deficiency in the latter class is due to causes which prevent the deposit of the required amount of inorganic matter in the teeth during their development, or its proper assimilation. These causes are various, the principal of which are disease, improper food, and hereditary

predisposition. The advisability of filling children's teeth cannot be disputed as the fact is clear, that if the teeth are extracted before the proper time, the bones do not develop as they should and the permanent teeth will be more or less crowded, a condition which renders them more liable to decay.

All treatment should be pursued with a knowledge of the predisposing cause. It is impossible to remove the predisposing cause, but remove the exciting cause as far as possible. The object of filling is to restore the continuity of the protective covering of the tooth, we cannot improve the condition of the surrounding tissue, therefore it is just as liable to decay as before.

In filling temporary teeth it is not advisable to use gold, as the plastic fillings are preferable for two reasons: they are more quickly introduced, therefore less tedious to the little patient, and will preserve the teeth quite long enough to allow nature, in her ordinary course, to replace them with permanent substitutes.

If decay begins at so late a period that the permanent tooth will replace it before the cavity is large enough to give trouble, I think it would be judicious to leave it without filling. If, however, it is thought well to fill the tooth, we are to be governed by the position of the tooth and condition of the oral fluids.

If the cavity is in the incisors or mesial surface of the cuspid, the position of the cavity, such as will protect it from the friction of mastication, or where there is marked acidity of the fluids of the mouth, I would advise the use of gutta percha.

Where the filling is exposed, or fluids of the mouth alkaline or neutral, use oxyphosphate cement as it is harder and will bear more friction than gutta percha. In temporary molars if the cavity is small I would use amalgam, unless the pulp is nearly exposed—then use oxyphosphate cement, and, if found necessary, the surface of the filling can be removed, retaining-points made and the cavity filled with amalgam.

It is necessary to enumerate here only the few filling materials in general use, viz.: gold, amalgam, tin, gutta percha, and the oxyphosphate and oxychloride cements. Other varieties of material have been used but not with enough success to merit a place among those in constant use. In the majority of cases gold is the best filling material. The various forms in which gold has been used have given way almost entirely to cohesive foil. Soft gold, by reason of its pliability, can, perhaps, be more closely adapted to the

walls of the cavity than any other form, but its difficult manipulation has given cohesive gold, which is more easily worked, the preference.

The failures in gold fillings are generally caused by want of proper adaption of gold to the walls of the cavity, thereby allowing leakage, or by jarring or chipping of the edges of the cavity by the plugger, or by improper finish on the filling; in the latter case it may either overlap the edge of the cavity or be deficient, exposing the edge of the tooth tissue, either of which would be a source of danger. If the gold is not properly condensed it is liable to scale off and thus expose the tooth substance.

Some practitioners are too apt to treat all cases alike, thereby multiplying the number of failures. In a case where gold would be the best filling, if properly introduced, under existing circumstances, it might prove useless in preserving the tooth. Take, for instance, a cavity on the distal surface of a second superior molar, in that position it would be next to impossible to make a perfect gold filling while a good amalgam filling could be inserted successfully. In this instance I would say, use amalgam, a good amalgam being better than a bad gold one.

Another position in which I would not recommend gold is on the buccal surface of inferior molars, when spreading, superficial caries exists, as it would require frequent renewing. Here I would recommend Hill's stopping or some other preparation of gutta percha.

Under the following circumstances I would recommend gold: Where the patient is over fifteen years of age, the composition of the tooth hard and dense, the organic and inorganic constituents well proportioned, and the cavity easy of access so that a compact filling can be inserted and properly finished off.

In contour filling cohesive gold is the only material which can be used successfully. The best manner in which to prepare gold to make a strong filling, is to fold the leaf fan-shaped.

Gold has no therapeutical action on tooth tissue, therefore will not cause nature to exert any recuperative power, but acts simply as a mechanical plug by which the injurious agents are excluded.

Some operators advocate the lining of cavities with soft foil previous to filling with cohesive gold; this cannot always be carried into practice as the shape of the cavity will not permit it. The objection of this style of work is that no union takes place between

the soft and cohesive gold, and therefore the mass of cohesive gold in the centre of the filling is liable to be displaced.

Practically, amalgam stands next to gold as a filling material, being sufficiently hard to bear the pressure of mastication, it is insoluble, easily inserted and easily adapted to the walls of the cavity. Where the patient is very susceptible to the influence of mercury, amalgam should not be used, but these cases are indeed rare. The influence of so small a quantity of mercury at such a low temperature would have little effect, because a temperature of five hundred degrees is required to produce any injurious mercurial salt.

In using amalgam it should contain such proportions of metals as to prevent it from shrinking. A good percentage of tin will prevent this, the presence of a large proportion of tin makes the filling less brittle which is rather an advantage, as it renders it less liable to crevasse. A good filling material is obtained from forty-nine parts tin and fifty-one of silver, a small portion of gold gives to it a finer grain. Crevasseing is a serious fault of amalgam, especially where the filling is required to bear much pressure. Take for instance an approximal cavity in a molar or bicuspid, the pressure of mastication chips the brittle edge off the filling, leaving a crevice between the tooth tissue and filling which is injurious in two ways; first, matters such as particles of food and the like, being pressed between the tooth and filling tend to force the filling out of place, second, these particles of food remain there and exert an evil influence by being decomposed, forming acid which renews the decay, this latter objection will apply to any amalgam filling which has to bear pressure, the former only to approximal fillings. Gold has not this objection, being malleable.

Another great objection to amalgam is its tendency to discolor. Any filling which contains mercury will discolor in the mouth, therefore is not suitable for use in any cavity where the filling is exposed to view, as for example in the incisors or anterior surface of cuspids. It not only oxidizes on the external surface but also on the surface, which is in contact with the tooth substance, and will cause a dark appearance on the surface where the walls of the cavity are thin and semi-transparent. The formation of oxide beneath the filling in some cases slightly raises the filling from its place so that the surface is higher than the surface of the tooth tissue surrounding it. This is apt to make the filling leak, yet it is possible that this oxidation retards the process of decay by its

presence. When new, the color of amalgam is less objectionable than that of any other material with which teeth are filled, and when subject to constant friction by mastication presents a smooth, bright surface for a long time. Amalgam should be used immediately after it is mixed for, if disturbed after crystalization begins, it is likely to become more or less friable. Too much mercury or too little will also injure the properties of amalgam.

Amalgam can be used to advantage in some cases as a foundation for gold fillings ; for example, a cavity which extends so far below the margin of the gum as to make it impossible to apply the rubber dam successfully the cavity may be filled nearly to the margin of the gum with amalgam, allowing it to set, apply the rubber dam, and complete the operation with gold.

I would conclude then, that amalgam would be preferable to gold in the following cases :—In back teeth, the crowns of which are too frail to stand the pressure necessary for the insertion of gold, in cavities where it is impossible to properly consolidate and finish off a gold filling ; for example, the posterior surface of a second or third molar, in molars of the temporary set and, as above suggested, as a foundation for gold in certain cases.

Next in order, we will mention tin, which is not very extensively used on account of the difficulty of inserting it. It is manipulated in the same manner as soft gold, therefore considering the difficulty of inserting it, the very slight difference in cost of the quantity of material required for a filling, and the fact that it becomes black where the fluids of the mouth are vitiated, gold is preferable, for where you can insert tin you can insert gold.

It is better than amalgam to preserve a tooth ; on account of its malleability it will not crevasse or chip at the edges, it will therefore remain in contact with the walls of the cavity if properly introduced.

Gutta percha has a number of good qualities, although not hard enough to bear the friction of mastication, yet in protected cavities, or those where no great amount of pressure comes on the filling, gutta percha will give years of service. It is especially useful in the teeth of children under the age of fourteen years ; under this age it is not advisable to use gold as the teeth are not thoroughly developed, the pulp larger and the proportion of inorganic matter less than in teeth of adults. The pulp being larger a metal filling, by reason of its great conducting properties, is liable to cause death of the pulp. During the constitutional changes of puberty the mucous

secretions are markedly acid, and from that cause a recurrence of decay is liable to take place ; at that period the teeth are also very sensitive. For these reasons gutta percha is a valuable filling material at and before that period until the composition of the teeth is determined and the fluids of the mouth have returned to their normal state.

It is urged as an objection to gutta percha that it shrinks from the walls of the cavity, but if the cavity be kept perfectly dry and the walls are first coated with a solution of gutta percha in chloroform and the filling then introduced without too much heat and kept under pressure until it cools all the shrinkage will be about counterbalanced by the heat and moisture of the mouth.

It is well adapted to buccal cavities in second and third molars where there is a tendency to superficial decay, as the filling must be frequently removed. Approximal cavities which can be easily approached from the side instead of the crown are suitable cases for treatment with gutta percha ; but here there is one objection to its use ; when severe pressure comes on the crown over the filling, if there is only a thin portion of tooth tissue intervening, it will give way as the gutta percha is not sufficiently hard to afford support, so this treatment is only admissible where the cavity is a considerable distance from the crown.

Cement filling has of late years taken an important place among filling materials and presents many useful properties, but has one fault which entirely destroys its worth as a permanent stopping, that is its solubility in the fluids of the mouth. It is especially soluble if there be a small amount of acid present, and acid is found in nearly every mouth from some source or other ; if the saliva be not acid itself, there are other sources from which the destructive agent may come, such as acids taken with food or medicine, or formed by the decomposition of particles of food left between the teeth. If the fluids of the mouth were always alkaline then cement fillings would give efficient service for a length of time, but although the saliva is slightly alkaline when first secreted it becomes neutral and frequently acid when mixed with the secretion of the mucous glands of the mouth, and its influence is constant upon the filling. The decay of the teeth is of itself a proof of the presence of acid, for decay in its first stages consists in a decalcification of the hard tissues of the teeth by acids present in the mouth.

The cements are very valuable as capping or nonconductors in large cavities under metallic fillings where the pulp is nearly or altogether exposed, because the salts of a metal are not as good conductors of heat and cold as the metals themselves. In the choice of a cement for this purpose one should be sought which will not produce too much pain and discomfort to the patient. If the pulp is exposed it is well to cover the exposed part with oxide of zinc, mixed into a soft putty-like mass with creasote, then apply the cement in a consistency which will require little or no pressure and leave unmolested until thoroughly set. A filling made of oxide of zinc and powdered silica mixed with phosphoric acid is less irritating than one mixed with zinc chloride and makes equally as good cement for lining cavities.

Tooth tissue will not decay under oxychloride filling, and even partially decayed dentine will become hard and serve for many years when left over a nearly exposed pulp if covered with this cement. The ingredients of the cement act as both stimulant and antiseptic, inducing in some cases better organization in the living tissues to which it is applied. It is the only filling material that adheres to the wall of the cavity and will therefore be more likely to exclude moisture, but when the filling becomes dissolved away from the edge of the cavity it will allow recurrence of decay just the same as any other filling, when not in contact with the wall of the cavity. Where the operator intends to insert a metallic filling in a tooth of soft composition it is well to line the cavity with oxychloride or other cement, allowing it to come as near to the edge as possible without being exposed, make the retaining grooves in the cement, and fill with gold or amalgam, whichever is most suitable to the case.

This method will give the advantages of a hard surface with the preservative influence of the cement against the walls of the cavity.

The good qualities of oxychloride or oxyphosphate filling may be enumerated as follows:—It is a non-conductor, it adheres to the walls of the cavity, therefore excludes moisture; it has a beneficial therapeutical action on tooth tissue with which it is in contact, it is easily introduced and easily adapted to the walls of the cavity, and it is very near the color of the teeth.

It may be used to advantage in the following cases:—For filling nerve canals and pulp chambers, for lining cavities in sensitive teeth, for capping exposed pulps, for temporary or test fillings, for filling

in temporary incisors and cuspids, and also in teeth of soft texture ; in the latter case it will require to be frequently removed. It will also prove servicable where the tooth is so frail that it will not bear the pressure necessary for the insertion of gold filling.

Although there is much in the choice of a material for any given case, yet, many failures occur from lack of skilful manipulation of that material, either in its preparation or insertion ; but an operator who is capable of choosing the filling material best adapted to a certain case is also likely to be capable of properly preparing the cavity and manipulating the chosen material.

Cantharides Destruction.

BY T. DALA, Newfoundland.

I have never used arsenic for destroying the pulp in deciduous teeth, because one is never sure of the condition of the foramina at the apex. For a long time I gave nitrous oxide and destroyed it under its influence ; then I used repeated applications of carbolic acid. But to Prof. E. T. Darly, of Philadelphia, I was indebted for suggesting the use of Spanish flies, or cantharides, and I can recommend it after nine years' experience. Moisten a pellet of cotton with carbolic acid, and then dip it into the powdered cantharides—not the tincture, generally two applications may be necessary. After removing the pulp, and you desire to preserve the tooth for a short time, place a little dish of lead punctured with a hole in the top, leaving a needle in it, to be withdrawn after filling with amalgam. It is not necessary to treat the root canals of deciduous teeth with the same care as those of the permanent ; and my experience with the cantharides has been that they never need it as if arsenic had been used.

The Dental Profession.

Mr. Chairman and Gentlemen :

One of the most memorable and important interviews which ever took place between two individuals in this world, was held on a raft in the middle of the River Nieman, at the little town of Tilsit, in Prussia.

At one o'clock precisely, on the 25th day of June, 1807, boats put off from opposite sides of the stream and rowed rapidly towards the raft. Out of each boat stepped a single individual and the both met in a small wooden apartment in the middle of the raft, while cannon thundred from either shore and the shouts of armies drawn up on both banks, drowned the roar of artillery. The two persons were the Emperors Napoleon and Alexander, and the history of the time tells us that they had met to "arrange the destinies of mankind."

The hastily constructed raft on which the interview took place, will be remembered as long as the story of great conquests and mighty revolutions can interest the mind of man.

The conference lasted but two hours; it was entirely private between two Emperors and yet it was fraught with momentous consequences to millions. It was one of the great crises in human history, when the currents of power that govern the nations take new directions and break over the bounds and barriers of ages.

Fifty years ago this present autumn, in the City of Baltimore, was held another conference of far more momentous and lasting importance to mankind, than that between Napoleon and Alexander. It was not watched with larger expectancy by great armies; it was not hailed by the thunder of cannon and the shouts of applauding thousands; it was not arranged beforehand by keen and watchful agents, guarding the interests and safety of those who were to meet. It was at night—in a private house and was brought about by the mingled anxiety and desire of a few earnest men to know more of the truths which had so fired their imagination and charmed their senses. And yet from that humble night conference between Dr. Chapin A. Harris and his associates, there have gone forth beams of light and hopes of relief to the ends of the earth.

The plans formed by Napoleon and Alexander at Tilsit, were reversed and defeated long ago, and it is impossible to trace their influence in the conditions of European nations to-day, while from the plans and purposes of that other conference, have gone forth blessings which have already changed the condition and cheered the hearts of millions and have more influence in the world to-day than ever before, and are destined to go on increasing in power and influence until they shall be received as the harbinger of comfort and joy to every nation under heaven.

It is now plain of recognition, that the great science of medicine and surgery, wrestling with the intricate and unsolved problems of the human system, failed at the opportune time to comprehend the importance which attaches to the care and preservation of the teeth, as it utterly refused to make provision for their study or the treatment of their diseases.

Respectable and medically-educated dentists, seeking admission to their associations, were refused because they were *Dentists*, and their requests for educational facilities, whereby those desiring to devote their energies to this department, spurned with contempt, as being beneath the dignity of a medical staff.

Dentistry as a specialty of Medicine was completely ignored by them.

Entire courses of lectures were delivered in their colleges, without the promulgation of a rational theory on the cause, effect or treatment of a single pathological condition of the teeth. That they were parts of the human organism, complicated in structure and relations, more subject to diseases than other organs, in intimate association with the centres of life, important agents in inciting disease in other parts, leading not infrequently to intense suffering and the abridgment of human life, were matters receiving no consideration.

Standard Medical works taught theories exploded, and application of remedies abandoned by Dentists long before. Every day evidence was accumulating, showing the unfitness, the inability of Medical schools to furnish the Dental students the information which should fit them for the practice of Dentistry. How, then should the work of education be accomplished?

The establishment of independent schools seemed alone to offer a satisfactory answer, and with a full appreciation of these facts, a few self-denying, resolute men, led by Dr. Harris—and as a result of that humble night conference—organized, in the City of Baltimore, in 1839, the first Dental College in the world.

From that humble beginning—that little cloud which, in 1839, seemed scarcely so large as a man's hand—have come benighted influences, broadening and expanding, until to-day there is not a civilized nation of the earth where their benefits are not seen and felt.

Then, Dentistry as a whole scarcely took rank among the honorable trades; to-day it is justly classed among the honorable

professions. *Then*, its practitioners were craftsmen; to-day they are gentlemen of culture and scientific attainments. *Then*, it was a conglomerate and unorganized mass of men, each seeking to conceal his own ignorance; to-day it is a body of generous men, organized into societies for mutual improvement. *Then*, it was scorned by the Medical profession and unnoticed by the world; to-day it is treated with consideration and respect by the whole Medical fraternity and accorded its justly important position as a department of Medicine by the broader cultured and more conspicuous of all the professions. *Then*, it was composed of men schooled only in secret formulæ and mysterious arts; to-day it is composed of men schooled in science and trained in the arts of benefitting mankind. *Then*, it was without resources or appliances; to-day it is possessed of large resources, and is rich in the most ingenious and appropriate appliances.

Then, it was without literature, neither had it authority; to-day it has a respectable and rapidly-increasing literature and authority as clear and fully pronounced as are the same in Medicine, Law or Theology. *Then*, it was full of envyings, jealousies and back-bitings; to-day its code of ethics is as dignified and exacting, and the intercourse among its members as unselfish and genial, as the same in any other profession.

These, gentlemen, are a few of the contrasts between 1839 and now; and these are the things that have been wrought out in Dentistry, by the spirit infused into it at that humble conference fifty years ago; and when we contrast the condition of our profession to-day with that prior to '39, we can but feel that the *seeming* evil of separation from the Mother Science, has been overruled for good to suffering humanity, and the credit of general medicine. It is believed the history of no other profession offers a parallel to the remarkable forward strides taken by the Dental profession during these fifty years. Yet rapid and remarkable as has been this progress, when another fifty years shall have "rolled away, breaking their noiseless waves on the dim shores of eternity," it will be seen that at no previous time has it been so rapid and remarkable as at the present.

Never before has the Profession been so well and so thoroughly organized, when so many of its members have been embraced within its societies; when the standard of educational and professional requirements has been so high; when the fields considered proper

for investigation and study, have been so varied and widespread, and when the ambition and aim of all seemed to be to study, investigate and disseminate knowledge, as it relates to the Profession.

When in any previous time, has it been known that the Medical Profession was seriously considering "the care of the teeth from a medical standpoint," or when a man so high in the estimation of his profession as Dr. Shrady, the accomplished editor of the *Medical Record*, has said: "That the sooner our Medical Colleges insist upon a knowledge, in their students, of oral surgery, before graduation, the better for all concerned;" when "reflex nervous dental irritations" form the leading discussions of State and National Societies; when Laryngologists begin the study of their specialty at the entrance to the oral cavity, insisting that many of the diseases of the upper air-passages are directly traceable to dental irritations; when the founding of Dental Hospitals and Dental Infirmaries are seriously considered—and indeed are already in the process of formation; and when members of the Profession, from different and distant localities, can come together, as on this occasion, in a mutual interchange of ideas and expressions of good-will towards one another? There is one feature with reference to our Colleges of which I desire to speak briefly, and which I think I can do with propriety, as I know that you, of Ontario, hail with as much pleasure any measure looking toward higher Dental education, as we of the States.

At a meeting of the "National Association of Dental Examiners," held at Saratoga on the 6th of last August, twenty out of twenty-five colleges recognized by that Association being present, a resolution extending the course necessary for graduation, to three years of not less than five months in each year, came up for consideration and received the affirmative vote of nineteen of the institutions present; this vote was afterwards made unanimous, as, in accordance with the rules governing the Association, it became equally binding upon the five not represented, so that to-day all the reputable Dental Colleges of the United States require, on and after the present year, three full courses of not less than five months each, for the graduation of their students; the only exception to this rule is, the degree of M.D. being accepted as equivalent to two years in the Dental School.

The special feature of this whole movement, and one I desire to emphasize, is the fact that it was led by the younger colleges, just as

in the Profession at large, it is the younger men that are pushing out into new fields, that are carrying the banner of science to the front, and that are doing so much to broaden and elevate our chosen profession.

Two features more are needed, and which, I believe, will soon come, *i.e.*, preliminary examinations—which indeed are already required in some of the Colleges—and *a pupilage of not less than two years in a reputable Dental office, before being eligible for the preliminary examination.* With these additions, the Dental Profession in the United States will be better organized than any other of the learned professions.

“With its colleges united into one harmonious association, working for the upbuilding of the standards of which they teach; with statutory enactments in a large majority of the States governing the practice of Dentistry; with a three-years’ graded course of instruction, with preliminary and intermediate examinations, we may well feel proud of our position and respectfully challenge the Medical Profession to emulate our example.”

Whether Dentistry shall ever be recognized and accepted as a specialty of Medicine or not, the rapid strides towards perfection she is now making will entitle her Degree to as much consideration and respect as that of any degree granted in this or any other country.

But there is another feature of Dental Education, upon which I have thought much, though I have never seen it discussed by any of our societies or journals, and as I have the honor this evening of being the guest of an institution, in some respect superior to ours in arrangements, I will venture to throw out the suggestion, trusting that my friends here may find in it something worthy of reflection.

It is the founding of a National Dental School in the Profession, for the Profession, and controlled and maintained by the Profession. An institution about which it may gather, selecting its own teachers, directing its own affairs, and so chartered as to receive endowments and establish chairs in special departments, as is the case with so many of our foremost Theological, Scientific and Literary Institutions. The old men, the pioneers of our Profession, are rapidly passing away. Some of them—all too few, however—have acquired a little means, which they would gladly bestow upon such an institution, so that in a few years it would be placed above financial necessity, and in a position to do better and more progressive work than the schools of the present day.

That you have surpassed us in that your school is founded, in a measure at least, upon the Profession, is to your honor but not to our dishonor. With us the school was the outgrowth of a desire on the part of a few men for more knowledge: with you it was the product of our industry, failures and successes. With thirty years' experience behind you, and with the leading men of the Dominion graduates of our institutions, it were strange indeed if you should not have combined in one school features in advance of ours.

Yet institutions of learning should be judged, not so much by the manner of their formation and the regulations governing them, as by the work they are doing. With us we have many things to condemn, and I doubt not you have *some* things also; while with both there is enough of good to engender a spirit of emulation, and to lead the Profession on the two sides of the Niagara to a closer and more intimate bond of fellowship. The Dental Profession has the making of its own destiny. Whether that destiny shall be wrought out—in the light and experience of the past—in an independent and dignified course of its own, maintaining separate and distinct institutions of learning, and with a separate and peculiar degree as now; or whether Dentistry and Medicine shall be taught in the same institutions, by the same teachers, and all and each having the same degree—a common profession, a common education, a common degree, and having common privileges and common honors—I know not. But this one thing I do know, and this much I desire to say, that Dentistry took its first and greatest strides towards the perfection in which we see it to-day, when, fifty years ago, it started out on an independent and separate course.

Is it possible, gentlemen, that the men laying the foundation of a profession capable of such progress, were "ignorant," "unlearned," "unthinking," "peripatetic itinerants"? I cannot believe it! On the contrary, I do believe that, in their day and generation, they wrought better and wiser than we in ours. We do not flatter ourselves with the notion that we have attained perfection, and that no more truths remain to be found. We believe that we are wiser than our ancestors. We believe also that our posterity will be wiser than we. It would be gross injustice in our grandchildren to talk of us with contempt, merely because they have surpassed us; to call Watt a fool because mechanical power may be discovered which would supersede the use of steam; or Franklin an ignoramus because he did not know that electricity would become the great

motive power of the world; or Morse ignorant and unlearned, because he did not appreciate the revolution in the commercial world his telegraph was destined to achieve.

As we would have our posterity judge us, so we ought to place ourselves in their situation—to put out of our minds for a time—all that knowledge which they, however eager in their pursuits after truth, could not have, and which we, however negligent we may have been, could not help having. It was not merely difficult, but absolutely impossible, for the best and wisest men fifty years ago to be what a very commonplace person in our day may be, and indeed of necessity must be. “It is easy enough, after the ramparts have been carried, to find men to plant the flag on the highest tower. The difficulty is to find men who are ready to go first into the breach, and it is the grossest injustice to insult their remains because they fell in the breach, and did not live to penetrate to the citadel.”

Sydenham first discovered that the cool regimen succeeded best in cases of smallpox. By this discovery he saved thousands of human lives; and we venerate his memory for it, though he never heard of inoculation. Lady Mary Montague brought inoculation into use, and we respect her for it, though she never heard of vaccination. Jenner introduced vaccination, and we admire him for it, although some still safer and more agreeable preservative should be discovered. It is thus that we ought to judge the events and the men of other times. They were behind us. It could not be otherwise. The question with respect to them is not, *where* they were, but which way they were going. Did they exert themselves to help onward the great movement of the human race, or to stop it? A person who complains of the men of '39, for not being the men of '89, might just as well complain of a projectile for describing a parabola, or quicksilver for being heavier than water.

There is a small lake upon one of the high passes of the Alps, the waters of which find their way to the Ocean by two different channels. One portion takes the course of the “wide and winding Rhine,” and goes forth to mingle with the stormy waves and crashing icebergs of Northern seas. Another joins the blue current of the “Arrowy Rhone,” and finds its way to the Mediterranean, along the vine-clad hills and sunny vales of France. One finds a home under the cold splendors of Auroral light, amid the freezing horrors of the Arctic Zone. The other blushes in the glow of

Italian skies, and lingers idly around the classic shores and storied isles of Greece. So small is that mountain lake, that a single flake of snow falling upon its surface, and dissolving in its water, may supply a portion for each of the two mighty rivers. Different parts of the same drop, that shot out the rays of the same crystal star, in the snowflake, may have a subsequent history, and a habitation separated from each other by ranges of the loftiest mountains, the utmost diversity of climate and the diameter of the globe.

In a sense, are we not like the snowflake falling upon the bosom of that Alpine lake? Each by his contribution swelling the stream of Discovery. Shall our contribution find a home amid Arctic superstition, error and falsehood, or amid the glow and warmth of truth, progress and light?

"Man may last but never lives,
Who much receives, but nothing gives ;
Whom none can love, whom none can thank,
Creation's blot, Creation's blank."

Gentlemen, the human mind is ever inquisitive, ever ready to scale the most ragged steep.

"Wake up its enthusiasm, fling the light of hope on its pathway, and no matter how rough and rocky it may be, *onward* is the word which charms its most willing powers."

CHARLES S. BUTLER, D.D.S.,

Buffalo, N.Y.

Toronto, Nov. 21st, 1889.

Dentistry in New Brunswick.

BY A LADY CORRESPONDENT, Moncton, N.B.

I have been reading your JOURNAL with the greatest pleasure and profit. I believe it has the honor of being the first Dental Journal printed in the Dominion,* a fact sufficient to show that the standard of the profession is being elevated in the Dominion of Canada as well as the United States.

*We are sorry we cannot claim this honor: it belongs to Dr. W. Geo. Beers who founded the old *Canadian Journal of Dental Science* about eleven years ago, but found paying the printers, the editor and all the subscriptions himself, to much, even for such an enthusiast for the general benefit of the profession, as our editor.—[THE PUBLISHERS.]

The articles are, it seems to me, admirably chosen, both for those laboring in the profession, and educating the people as to what their dentists should be.

It is with gratification not unmixed with a tinge of envy, that we in New Brunswick, see the standard of dentistry so much higher in Ontario and Quebec, than in our own Maritime Provinces. I do not mean that we have not as proficient dentists, but while they are protected there by dental laws, we have an open field for quacks, who can in a multitude of ways palm off their proficiency in so called painless (?) dentistry; while they are debarred from their nefarious practice in places protected by law, they come to us seeking "green fields and pastures new" and in the most resplendent dress and in the attractive announcements of painless extracting free of charge, cozen a certain class of credulous persons into having teeth extracted that ache, or in the future may ache, (like the boy who was sent to the store with a picture and flogged before he went, for fear he might break it) and in the meantime extolling the merits of their money-making medicine, warranted to cure everything from rheumatism to a sore toe, and selling bottle after bottle to grateful victims, who think they have struck a bonanza in having teeth extracted without money and without price, when if they had consulted a proficient dentist, they might have been made useful for years.

The time has gone when dentistry was on a plane with any trade, when it was thought that all required was muscle to bring out the teeth; and when any boy working for a few months in a dentist's office could put out his shingle as "Dr. so and so" and cheat himself and his patients into the belief that he was a proficient dentist. Where the community is protected by a dental law and the standard consequently elevated, dentistry is as it should be, placed side by side with the medical profession. When we consider what important effects the teeth have upon the general health, medicine and dentistry seem twin brothers.

We see the good effects of a dental law in that it leads to conventions where dentists may meet, advance and gain new ideas relative to their profession, benefiting themselves and consequently the general public and raising the standard of the profession higher.

It is for the dental practitioners of New Brunswick, to be up and doing, for we know by experience that nothing is to be gained by mere sentiment and theory, each should act well their part, putting

their shoulders to the wheel, and with their united efforts, break down all barriers, and present a Bill to the Legislature, when it would seem to all lovers of advancement and fair play that such a body of clever and intelligent men would at once see the advisability and the necessity of passing it with very little discussion and without a dissenting voice.

It is to be ardently hoped that in the near future we may see such a happy state of affairs in New Brunswick, while I feel confident every right-thinking dentist would be only too willing to do his share to bring it about.

Copper Amalgam.

*BY GEO. H. WEAGANT, L.D.S., Cornwall, Ont.

Two years ago, in the City of Montreal, at a meeting of the Can. Val. Dental Society, I had the honor of reading a paper on Copper Amalgam—the very first paper, as far as I know, which had ever been devoted to the subject. My paper was published in several of the Dental Journals, and Copper Amalgam, as a filling material for decayed teeth, immediately sprang into popular favor. Since then much has been said and written both for and against it, and, although I have changed my views in regard to some of the details of manipulation, the main features of my paper are being constantly endorsed, all over the world, by thinking and working practitioners. Nearly every month, mention of it at least, may be noticed in some one or more of the Dental Journals, and often several pages are wholly taken up in discussing the merits, or demerits of this practically new filling material. We never read the reports of the transactions of Dental Societies now, without finding some portion of the time of the meeting taken up, either by papers, clinics, or discussions upon this subject. What, then, can be the reason for this intense and general interest which is being shewn by the profession during the last two years? There certainly must be something in it or the subject would have been dropped long ago. At every meeting and in every number of the different Dental Journals we see new suggestions offered upon modes of treatment, operating, etc., which we never hear of again. New instruments

and appliances are described and illustrated and no one ever says a word about them afterwards. Some dentist brings forward a new theory, and devotes pages in proving it, and no mention is ever made of it from that time forth. There certainly must be strong grounds for keeping up this Copper Amalgam question for so long a time, and it seems to me that a solution may be looked for in the fact that dentists saw in Copper Amalgam the very thing they have been wanting for years: the missing step, as it were, in the range of filling materials, which would, in numberless cases, enable us to avoid the dire necessity of the forceps. Since dentists have come to see the value of plastics in the great work of tooth-preservation, we have been on the look-out for this very material. Though thousands of different amalgams, alloys, cements, and other plastics have been brought out and used, and over and over again manufacturers and others have claimed that they were perfect, we now see how universal was the feeling that they were far from perfect, else why the avidity with which Copper Amalgam has been snatched at and lauded to the skies? When it was only proved that it possessed those tooth-preserving qualities that were also claimed for other amalgams? We know of numberless amalgams guaranteed not to shrink. We have seen test tubes containing beautiful amalgam fillings that defied the shrink-detecting aniline dye, and we all of us have seen these very same amalgams "take water" when the supreme test in the mouth was applied. We all made good amalgam fillings, but—(in our inmost hearts we doubted.) We saw many, many failures which we were powerless to prevent. Is it any wonder that we received this Copper Amalgam (black as it was) with open arms? It did not take us long to convince ourselves about the genuineness of the properties ascribed to it. We knew the right article when we saw it. We recognized the signs we had been looking for so long.

A mistaken idea that many dentists have, is that one amalgam ought to be made to fill the bill for every case they may have to deal with, and they go searching the world over for an alloy upon which they can always depend. Many have asked me what amalgam I considered the best; and when I asked, "the best for what?" the surprised reply would be, "why, for filling teeth, to be sure; what amalgam—in case you wished to use only one kind—is best in all cases?" One might as well ask what medicine is the best for all kinds of diseases. If all patients, and all teeth and all

cavities were alike—in short, if all conditions were exactly alike, then it would be possible to obtain an amalgam that (again supposing all dentists to be equally skilful) would in every case be equally successful. No one pretends to assert that Copper Amalgam will do for every case—it does not take the place of other materials. It simply performs a service which they cannot do so well, or are utterly incapable of doing at all. It only fills a niche that before was unoccupied, but it fills it well, and those of us who know the importance of being always prepared for an emergency cannot afford to be without this valuable adjunct to our filling materials.

But Copper Amalgam is not so very new, after all. Every now and then someone comes forward, who says he used it years and years ago—thirty and even forty years ago—and it seems strange that we are only now beginning to learn about it. Why, two years ago—when I read my paper—all I knew about it was derived from my own personal experience with it, an experience which was only acquired after years of study and experiment. It must not be supposed that I arrived at my conclusions in a hurry, and, could I only have had the assistance, or even encouragement, of a co-laborer, my endeavors would have been sooner crowned with success. When I began my experiments in this line, I searched diligently all the Dental literature available, to obtain any information bearing upon the subject. I waded through reports and correspondence without number. All our text-books, scientific works, works on chemistry and encyclopædias were silent on the subject. All I could find out about Copper Amalgam was very little indeed, and very unsatisfactory; but what little I could hear only spurned me on. I managed incidentally to learn that such a compound was used somewhere in the wide world by alleged dentists, with crude and uncivilized ideas, still I had never seen the material in or out of the mouth. I had never seen a dentist who had used it, nor had I ever met a dentist or anyone else who had seen it or known of it being used as a filling material for decayed teeth. Moreover, I was led to believe, from what little mention I could find of it, that Copper Amalgam, from its poisonous and other unpleasant qualities, and its disagreeable name and associations, etc., was wholly unfit to be used for Dental purposes. All that was bad in amalgams generally, I was told, was a hundred-fold intensified in this. If ordinary amalgams discolored the tooth, this turned the tooth such

terrible colors that the mere allusion to them produced a feeling of disgust. If other amalgams were suspected of occasionally exerting an injurious therapeutic action upon the system, what could you expect of a material compounded of two such dangerous metals as Copper and Mercury? But it was admitted that there was practically no shrinkage in an amalgam of copper and mercury. This was its only good quality; but, in the face so many dangerous qualities, who of us would have the audacity to experiment with it in the human mouth. Someone has said, "it must have been a brave man who first swallowed an oyster," but, gentlemen, I tell you it required a good deal of moral courage to put the first filling of Copper Amalgam into the human mouth under these circumstances, and I have no trouble whatever in recalling all the incidents connected with my first experiment in this line.

It is not a very difficult thing to make a Copper Amalgam—when you know how; and to one who has had a life-long experience in the manipulation of amalgams it would appear a very easy matter indeed—until he tried. It was a long time before I discovered how to cause copper and mercury to amalgamate at all, and a great deal longer before I succeeded in producing a Copper Amalgam that would set; and when, after an infinite amount of trouble and work, and the expenditure of more time and money than I would care to acknowledge, I obtained a dirty and unwholesome-looking mass of what, I hardly dared to hope, was Copper Amalgam and nothing else, the result was far from promising, and I did not wonder that dentists hesitated to use it for filling teeth. But, crude as the material was, I soon satisfied myself that it possessed properties which ought to prove invaluable in Dentistry. I resumed my experiments with a better heart for the work, and a determination to conquer. I proved, to my own satisfaction, that to the presence of metallic oxides in the amalgam was due the discoloration of the tooth structure, and, in some cases, the disintegration, wearing away or "rotting" as Flagg calls it, of the substance of the filling itself.

We all know that copper and mercury are oxidizable metals—that these metals, under certain conditions, have the power to absorb an immense amount of their own oxides, and an amalgam of these metals may contain oxides without showing them. But the presence of these oxides injures the filling more or less according to the quantity contained; and great care must be taken to avoid it.

A good Copper Amalgam must possess the following properties, viz.: purity, cleanliness, plasticity, and quick-setting. To be pure, it must contain no other metal than copper and mercury—not even a trace. To be clean, it must not contain anything in the shape of oxides of either copper, mercury or any other metal, or any other substance whatever; it must be plastic and quick-setting so as to be easily manipulated.

As I said before, copper is an oxidizable metal, and, in connection with mercury, equally so. The action of water, air, and heat will oxidize it. The oxides so formed render the amalgam unclean, and injurious to its lasting qualities. They also tend to discoloration of the tooth structure, which does not occur with a perfect copper amalgam. We cannot prevent the surface of the filling becoming discolored when it comes in contact with the fluids of the mouth; this discoloration is necessary, and whenever we find a copper filling does not become black, it is an indication not to use it in that mouth, because disintegration is sure to take place.

At the time I presented the former paper upon this subject, I was under the impression that the more mercury that could be removed from the amalgam the better, "the more quickly it would set and the harder it would become." Other manufacturers and operators believe so still, and some of them make use of hydraulic pressure to squeeze out the mercury. I have since become convinced that this is unnecessary, that it interferes with the plasticity and sometimes with the setting, and also that extreme hardness is a decidedly objectionable feature in an amalgam. I have also found that when the amalgam contains so little mercury, more heat is required to render it plastic, that this increase of heat makes it unclean (oxidizes it, in fact) and retards the setting.

It was only after a great deal of experimenting that I discovered how to make a copper amalgam which would become plastic at a low temperature, and also set in a few minutes without the necessity of removing mercury. I bring about this result by a process of tempering.

Dental Dots Distilled.

D. V. BEACOCK, Brockville.

If you wish to be happy, use coiled wire belting for your dental lathes: I have had two in use for six years and not a break.

To remove chlor-percha from instruments, dip in hot water, rub hard with a cloth.

Dr. Meriam, says a tooth is worth itself, the teeth with which it occludes, and all that they, united, can do for the organization.

Carron oil—Equal parts of linseed oil and lime water mixed together make a capital application for burns.

The deterioration of rubber dam, is due to the formation of sulphuric acid from slow oxidation of the contained sulphur. Wash well in weak alkaline water.

Dr. Miller says, "Give me these two factors (organic acids and fungi), and I can produce caries which will deceive the most experienced operator or microscopist."

To get pure alcohol, I hang a piece of gelatine in the bottle. It will absorb the water and leave the pure article without distillation.

The lady of the near future will select with jealous care, the dentist who guards from harm her oval case of jewels rare, and ten times more fastidiously than she now selects the physician who assists in augmenting her posterity.

Local anæsthetics: There have been chloroform and aconite, Tiffin's drumine, stenocarpine, cocaine, Barr's, Ball's, and now another is on the road, a *shocking* one, the Vibrator.

A piece of rubber vulcanized over the face of an old worn-out rivetting hammer makes one of the handiest things imaginable for fitting the metal air chamber into casts.

Heat red or white gutta percha on a porcelain slab until sufficiently soft to be kneaded full of oxide of zinc; this makes an excellent temporary filling.

It is a waste of time to varnish and oil flasks; to part the investing, oiling is sufficient in all cases.

Selections.

Protests Against Dental Exhibitions.

BY C. BREWSTER, L.D.S.

Inclosed I send you a Protest against Dental Exhibitions, in the form of a protest to the Committees of Public Exhibitions, to refuse the bestowal of prizes on any such objects. Will you authorize me to affix your name to it? If so, please sign the accompanying copy. The dentists in this city have unanimously agreed to sign it. I have sent a similar copy to every dentist in Upper and Lower Canada (whose name I could procure).

My project is to get every dentist in the two Provinces to sign the paper sent to him, *and return it to me*; whereupon, having collected the signatures of all those favorable to the project, I will then attach all the names that I am thus authorized to use to fresh copies of the petition, and return one to every signer, retaining the *original* signatures, so that should a committee at any time object to the petition on the ground that it was not original, the dentist presenting it could procure from me the original if required; to be returned again, however, in case it might in future be again called for by some other committee. Thus two or three, or I hope *all* the dentists in every city, town or village would have in his possession one of these copies. And any one of these dentists presenting his copy to the committee would be sufficient to prevent any future aspirants to the title of "First Prize Dentists" from obtaining their object. And even should there be any hesitation on the part of the committee, all the presenting dentists would have to do would be to call on all the other respectable dentists of his community to support the motion, for it is from among that class that I expect to enroll most of the supporters of this petition; and, sustained by them, it must have a powerful influence on this point with committees of exhibitions.

I would suggest that every dentist frame his copy, and hang it in his surgery, and it will grace his walls infinitely better than any First Prize Diploma would.

Before concluding, I would inform you that we have succeeded in preventing any prize being given to dentists at the coming exhibition in this city.

Hoping to hear from you as soon as possible,

I remain, your most obedient servant.

P. S.—What is your opinion as to incorporating the dentists by act of Parliament, and obliging all those who in future may wish to practice in Canada, to pass a proper examination before a Board of Dentists?

With regard to this, the opinion was unanimously in favor of it.
—C. B.

To Committees of Exhibitions.—We, the undersigned dentists of Upper and Lower Canada, wishing to put a stop to the growing evil of exhibitions of specimens of mechanical dentistry, which practice has increased of late years to such an extent as to be now looked upon by the public as a test of superiority, thereby gradually involving many respectable dentists in the same practice, from the sheer necessity of self-protection.

And whereas we look upon the bestowal of prizes for specimens of this work as tending to deceive, and lead the public into the erroneous idea of supposing such dentists to have superior capabilities.

And whereas we, the undersigned, are aware that such specimens do not at all denote any superiority on the part of the exhibitor, as the superior excellence of the dentist does not consist in the mere mechanism of a set of teeth, but in the adaptation of them to the muscles of the mouth, the expression and form of the face, their proper articulation, and the attainment of many other objects which cannot be properly defined and demonstrated in the show-case of the exhibitor.

And whereas we, the undersigned dentists, have come to the determination of endeavoring to prevent all future exhibitions of this kind, we do humbly petition your committee, together with all other committees of exhibitions that in future may be organized, to refuse the bestowal of prizes on dentists for specimens of this work :

Quebec, C. E., R. Ramsay, P. Baillorgcau, J. McKee; Sherbrook, E., A. Gilmore; Melbourne, C. E., W. Beckett; Toronto, C. W., G. L. Elliott, J. W. Elliott, V. Myers, J. W. Slater; Ottawa, C. W., Oliver Martin, F. D. Laughlin; Hamilton, C. W., John Reid; Kingston, C. W., B. W. Day, A. McMichael, J. T. Clements, L. Clements; London, C. W., A. C. Stone; Belleville, C. W., G. V. N. Relyea; Cobourg, C. W., F. G. Callender; Perth, C. W., G. W. Eberson, A. D. Lalonde; Simcoe, C. W., Charles Rudon; Morrisburg, C. W., R. G. Neagaut; St. Thomas, C. W., H. P. Whipple; Montreal, C. E., Geo. Vanbuskirk, A. Bernard, C. F. Trestler, J. H. Webster, M. Jourdain, H. Ross, J. A. Bazin, C. Brewster.

By their attorney.

(Signed) C. BREWSTER.

I, James Stewart Hunter, a Notary Public, duly commissioned and sworn, residing and practicing in the City of Montreal, do hereby certify that the foregoing is a true copy of the original remaining, of record in my office.

Acte whereof having been requested by the above-named Charles Brewster, I have granted the same under my Notarial hand and seal of office.

J. S. HUNTER, N. P.

Montreal, 20th August, 1860.

We publish the above paper with pleasure, and hope that it may serve the dentists in the States to make an effort in the same direction. It is time that something of the kind was done. We gave our views on the subject of Dental Exhibitions, some time since, in the *Dental News Letter*.

J. D. W.

Our Canadian College.

The attendance at the College this year is the largest in the history of the Institution. The new college was built about a year ago, the directors were of the opinion that it would be sufficiently large to accommodate all the dental students for some time to come, but each year they have found it necessary to put in a number of additional desks in the lecture-room, as well as new operating chairs in the infirmary. There are seventy-five students in attendance this session, of whom thirty-one are seniors and forty-four juniors. Several causes have combined to interest an unusual number of young men in dentistry. The most potent of these is, no doubt, the fact, that though the affiliation of the College, with Toronto University, and the raising of the standard for matriculation and graduation. Dentistry now occupies a recognized position among the learned professions. The day is past, when a liberal, general education was looked upon as superfluous to a dentist, and good reasoning powers are considered as essential as manual dexterity.

THE ANNUAL DINNER.

The fifth annual banquet of the faculty and students, was held at the Arlington Hotel, November 21st. There were over a hundred guests present, and the dinner was a decided success, reflecting credit both upon the committee of management, and the managers of this fashionable West-End hotel. Among the invited guests were: Drs. Ziegler, Keefer, Fisher, Troutman. Webster, Capon,

Hipkins, Stirton, Mills, Ball, Roberts, Callender, Oakley, Foster, Porter, Wade, Richardson, Spaulding, Lennox, Sefton, Adams Sr. and Jr., Cæsar, McLaughlin, Trotter, and Messrs. C. H. Hubbard and Chandler. Dr. Aikins, Dr. Geikie, Dr. Butler, and Rev. Leroy Hooker, represented sister institutions and were the guests of the faculty. Letters of regret were read from Hon. G. W. Ross, Mayor Clarke, Rev. Dr. Kellogg, Vice-Chancellor Mulock, Principal Kirkland, Dr. Beers, and other prominent men who were unable to be present.

After full justice had been done to the excellent menu that had been provided, President A. W. Thornton, delivered a short address in which he discussed various questions of interest to dentists, dealing chiefly with such as have reference to professional etiquette and practice. Whether or not Mr. Thornton had by mistake, taken a mouthful of pepper-sauce just before rising, is not known, but certain it is that his remarks were very pointed. The toast to the "Learned Professions" was then briefly responded to by Rev. Leroy Hooker, and Dr. Fisher, of Warton, after which Dr. Willmott proposed the toast to "Sister Institutions" in his usual happy style. Dr. Aikins in reply, spoke of the good feeling which should and does prevail between medical men and dentists, and pointed out how they might render each other much valuable assistance. Dr. Geikie spoke of the growing variety of dentists, and created much amusement. He had carefully watched the interests of the college from its babyhood, and trusted that it would have a glorious youth and manhood. Dr. Stuart, of the Faculty, then proposed the toast to "The Dental Profession" which was responded to by Dr. Chas. S. Butler, of Buffalo, who delivered the address of the evening. (See page 18.)

The toast to "The Faculty" was responded to by Drs. J. B. and W. E. Willmott. The former said that he was proud of the College and felt that he had good reason to be so. He was pleased with the students of 1889 and 1890, and complimented them on their ability. Dr. W. E. Willmott, as the youngest member of the faculty, was warmly received by the students. He spoke briefly and ended by wishing the students success in the spring. Representatives from the students of Trinity, and Toronto Medical Schools, the College of Pharmacy, and Toronto University, were then called upon, and all responded. Short and pithy address were also delivered by the dental students themselves, Messrs. Mills and

Moyer, representing the seniors, and Messrs. Boyes and Fill, the juniors.

Along with the toasts, was a good musical programme, rendered collectively and individually, assisted by one of the best of the city orchestras. Mr. W. Richardson acted as musical director, and Mr. W. J. Trotter as accompanist. The committee of management was composed of A. W. Thornton, President; A. T. Pearson, and H. D. Boyes, Vice-Presidents; G. J. Musgrove, Secretary; W. A. Richardson, W. J. Trotter, A. Agnew and Dr. Lennox.

The proceedings were closed by the singing of the national anthem, after which the guests dispersed, each feeling that he had passed what *The Mail* was pleased to call "a most scrumptious evening."

ODONTOLOGICAL SOCIETY OF QUEBEC.—The first meeting of this young society was held in the rooms of the Medico-Chirurgical Society, Montreal, on the evening of December 11th. The following were present:—Messrs. Bazin, Andres, Lovejoy, McDairmid, E. B. Ibbotson, J. S. Ibbotson, Stephenson, Berwick, Brown, Vosburgh, Globensky, Bourdon, Brosseau, Barton, Fitzpatrick, Maufette, Beers. The President, E. B. Ibbotson, in the chair. The President addressed the meeting in a few well-chosen words, explaining the objects of the Society, and trusting that on the second Wednesday of each month the members would make a special effort to attend and contribute to the programme. Incidents of office practice were discussed. W. George Beers gave a contribution, with microscopical and blackboard illustrations, on "Hyperæsthesia of Dentine," which was afterwards well discussed.

Editorial.

A Word to Our Readers.

The immense increase of the dental profession in the Dominion, need not alarm the pessimist. It is simply commensurate with the growth of the country. Let us ask ourselves, if it is not wiser and more patriotic to develop our own professional resources, and to improve the standard of education at our own doors, than to worry ourselves over foreign spheres, where we are not needed, however kindly we are received. To each one of us the reputation of

Canadian dentistry ought to be paramount. The success of a Canadian dental College: of Canadian dental societies: of a Canadian dental journal, ought to be received with personal delight. What claim could we have to recognition and an aspiring and progressive profession if we had to depend entirely upon the schools, the societies and the journals of our kindly neighbours? Would not any dentist in any city, town or village of this Dominion, feel personally ashamed if his patients reproached the Canadian profession with negligence in these matters?

It is impossible to conduct a journal to please everybody, but everybody can give us advice; and anybody who sees scope for improvement, will confer a favor, only second to the remittance promptly of past and present subscriptions, by writing his convictions to the editor.

Volume Two.

This number begins a new volume. The Dominion of Canada, as an integral and important part of the greatest empire in the world, is fully awake to its material and political possibilities. The dental profession in such a country cannot afford to be without a home journal. The DOMINION DENTAL JOURNAL, belongs to the Canadian profession.

Help or Hinder.

Which do you intend to do? This Journal is not published to push the business interests of its proprietor, or the professional success of its editor. They are both perfectly independent of any such collateral necessity for attracting notice. Somebody must risk something, and somebody must sacrifice time if Canada is to have at least one Dental journal. The publisher risks his money, and the editor freely gives his time. Now, do you not think, "gentle reader," you have also a personal and professional interest in helping, by your subscription, by your advocacy, by your contribution of hints and more elaborate papers, and by your advice. Tell us just what you would do if you were editor, and do not be backward in giving advice, for we feel every day the need of it.

Of course there are other journals, richly endowed by wealthy business firms, better than this one. But this one is the only one in Canada. It could easily sell its independence to-morrow for

such a sum as would pay for its publication for years to come. But it is loyal to the Canadian profession, and would no more sell out its advertising pages to one firm than Canadians as a people would sell their national birthright. We need our own independent journal in this great Dominion, and we care more to see it in every Dental office from Halifax to Vancouver, than if its circulation was doubled from Maine to California. Our neighbours do not need this Journal: Canada does need it. Therefore we ask every Canadian dentist to "fall in" the ranks of our helpers.

Dr. W. R. Patton, of Cologne.

When we were younger than we are, one of our most promising *confreres* left his native city, Quebec, where he practised a short time, and settled in Germany. During the existence of the "Canada Journal of Dental Science," he sent us contributions. We are delighted to be able to announce to our readers that our Canadian friend and brother was elected to the honourable position of President of the "American Dental Society of Europe," at the meeting held in Paris last August.

It will also gratify our readers to see the name of Dr. Patton on the outside cover of this Journal, as Corresponding Editor, and also to have the contribution read by him at the Paris meeting.

A Historical Document.

Under the head of "Selections" we print a historical document of great interest to the Canadian profession, from the *Cosmos* of December, 1860. The late Dr. A. Bernard, in 1842, made a fruitless effort to obtain some legislative protection, but there was nothing of a practicable character until this original effort of Dr. Brewster's. It is specially interesting to Ontario practitioners, because the chief correspondent with Dr. Brewster was Dr. B. W. Day, of Kingston, who getting his inspiration in this way, became the father of Ontario Legislation, seven years afterwards. We print the document just as it appeared in the *Cosmos* with the remark of Dr. White, then its editor.

In retiring from office after twenty-one years of unceasing effort on the Quebec Board, Dr. Brewster may justly feel that he has earned the respect of *confreres* in both Provinces, as he enjoys the affection of those who have all that time been intimately associated with him.

Our Advertisers.

Breaking stones, or driving a street car, would "pay" better than publishing a Dental Journal in Canada. Nobody ever thought of making this Journal, or its predecessor, a paying investment. It might be made to pay if it would become the advertising monopoly of one firm, but it never will. Were it not for the advertising pages it would be a heavy loss to the publishers, even though almost every Dentist in Canada is a subscriber. The Publisher is under obligations to those who advertise, and the Editors have no hesitation in asking Canadian Dentists to give them the preference when they can.

Legislation in New Brunswick.

Coincidentally with the letter from a lady correspondent, we have received from Dr. Murray, Moncton, N.B., the preliminary draft of a proposed Dental Act for New Brunswick, providing for the organization of the New Brunswick Dental Society, with a Council composed of seven legally-qualified practitioners, "who have obtained a Degree from some recognized College or University of Dentistry." With the general provisions of the Bill we are in hearty sympathy, but we object decidedly to a number of gentlemen possessing foreign degrees constituting themselves a council to compel New Brunswickers to attend foreign colleges and obtain a foreign degree in order to be "qualified" to practice in a Province of this Dominion. It is no reproach to New Brunswick that it does not yet possess a Dental College. The numerical strength of the Profession there, as well as the demands of the public, do not justify an effort of the kind. But with the example, for many years, of Ontario, and that of Quebec, Manitoba, and British Columbia, we can see no reason why our friends who ask Legislative protection for themselves should not be willing to burden themselves with a like responsibility, without forcing British residents to a foreign country, in order that they may have the privilege of practising in their own.

There is another and even more serious objection. Hundreds of graduates of the colleges to which our New Brunswick students would be forced to go by this law, obtained the D.D.S. in one session of a few months, without any matriculation, and without

any previous practice. This fact was so glaring and so openly practiced that many of our best men discarded the D.D.S. to their name. Some of them still refuse to use it. The Profession is crowded with scores of humbugs possessing this degree. It was given by English-teaching Dental Colleges to men who could not speak a word of English, and it was given to students who gave promissory notes for their course and never paid them: it is held to-day by a large number of men whose personal and professional reputation are about as low as they can be. True, it is held by our worthiest and noblest. It is honored by being held by devoted students and scholars. But is it at all likely that New Brunswick will attract the latter? We know what our fees are in comparison with American cities and towns. The experience of Ontario and Quebec ought to suffice to prove that applications, by the New Brunswick license from the United States, will be made almost exclusively by the D.D.S.'s of no repute, and no doubt by some of ill-repute. The only safeguard of the professor, as well as of the public, is a Provincial Board of Examiners, accepting college tickets as any equivalent they like, but compelling all applicants to submit to examination, *both* preliminary and practical. It cannot entail much trouble, and if the promoters of the Act are sincere in their desire, as we are sure they are, to elevate the standard of education in New Brunswick, they certainly ought not to humiliate their Province by driving students to foreign founts for knowledge. To encourage attendance at any well-equipped college is a different thing. But we believe it would be unconstitutional as well as unfair to say to a Canadian, "we have no Dental College in the Maritime Provinces, and if you want to practice here you must bring us a foreign diploma," Our New Brunswick friends have lots of pluck. Let them have self-reliance, too.

"The King and Queen of Dentistry."

We commend this latest addition to the professional quackery from over the border, to our Maritime Province friends who want to put a premium upon foreign qualifications, and a penalty upon "home manufacture."

A party using an *alias* writes with the above heading from New Glasgow, N. S., saying he has practised in Massachusetts, Nova Scotia, New Brunswick and Canada! What I would like to know

is what would the costs be for me to obtain a certificate, for I wish to settle down in Montreal. I've passed before the Commonwealth of Massachusetts Board of Registration in Dentistry. He heads his letter "from Montreal," evidently to delude the inhabitants outside. He suggestively adds, "I pronounce my name as ——— (giving an English name) in English, although it is ——— (giving a French name which has no association with that in English).

The Quebec Act would give this Royal Humbug a snug little surgery in the city jail. Some of our New Brunswick friends may be perhaps disposed to give him a Provincial license because he possesses a foreign degree.

The Penalties of Office.

One of the inevitable penalties of prominence is a share of unfair and sometimes malicious criticism. Good-natured people who never indulge in personalities about men who occupy humble positions, instinctively set them up as a target the moment chance or ability gives them the precedence. Count the number of truly unselfish men who come to the front out of office, and do their best to help their leaders, and how they dwindle in comparison with the army of obstructionists. To do many a man credit, however, there are some whose nature is retiring, and who have no thought of hindering a good work, but who prefer to co-operate by silent and unobtrusive assent. When shrewd statesmen are pestered by obstructionists of a serious stamp they give them a Government berth to quiet them, and there is no better way to take the wind out of the sails of a demagogue than to put him into office. Yet there is an element of danger in this. Look, for instance, at the political tramps which infest the Province of Quebec: the host of briefless barristers who starve in their legitimate occupations, but who, like Sancho Panza, think themselves fit for government. Men who utterly neglect their only means of existence: who have been professionally bankrupt: for whom public subscriptions were not long ago raised to pay their rent, fuel, etc., within a few months after filled positions at not very extravagant salaries, yet who seem by the profuseness of their wealth and the luxuriance of their surroundings, to have discovered some magical method of "raising the wind." The Province is politically as rotten and corrupt as these men can make it. Even religion is dragged in the mire to promote

the political ambition of these office holders. There is no punishment bad enough for such corruptionists ; but they will hold office so long as they can live on the credulity of their simple-hearted people.

Happily, professions are rarely as contaminated as politics. The leaders of thought and action, as a rule, are unselfish. There is no "boodle" in professional honors or offices. Some men's envy carry them to the extreme of accusing hard workers of working for their own interests when they are paid to give the best of their thought for a profession : but they would not undertake to occupy their position for double the reward. Men who spend much of the time they ought to give to their profession in preparing themselves to become teachers ; who make themselves more efficient as such than their detractors ; who give their very leisure to study and thought for their profession, frequently have the penalty of unfair criticism to pay. Yet what grumbler would willingly undertake to do their work ?

It is one of the vices of this continent—a thing very rarely found in Europe—that arrogant pretension can foist itself into prominence when merit and modesty have to sit in the rear. So well is this known as one of the successful elements of social, political and sometimes scientific promotion, that many men make it their chief, if not their only aim. Yet there are teachers and leaders who do honour to the profession they represent. If it is thought they do not or cannot, they should be deposed. If it is known they do, they should be loyally followed.

A Personal Explanation.

The Montreal editor wishes to say, in reference to a published statement that "he has secured the agency for Montreal" of a new patent, that he has done nothing of the kind. In fact, he positively refused any such offer, or any privilege which would not be equally extended to every other dentist in the Dominion. Learning, however, that a party intended to obtain a monopoly of what may or may not prove to be a useful invention, the Editor of this Journal checkmated the effort for the benefit of his confreres ; but he receives neither discount nor favor of any kind. Instead of securing any privilege or monopoly for himself, he has enabled every practitioner in the district named to enjoy "equal rights."

Our College.

A correspondent in our last issue criticizes the College in relation specially to its "Museum." The responsible officers are not in the least thin-skinned, and will, we are sure, not object to fair criticism. But it strikes us that they might turn the tables and criticize their profession, and especially their former students. The provision is made for a museum, but it is the business of the profession to furnish it. The fact is, we want more patriotic interest in the College.

Reviews.

A TEXT-BOOK OF ANIMAL PHYSIOLOGY, WITH INTRODUCTORY CHAPTERS ON GENERAL BIOLOGY, AND A FULL TREATMENT OF REPRODUCTION. By Wesley Mills, M.A., M.D., L.R.C.P. (Eng.), Professor of Physiology in McGill University; over 500 illustrations; New York: D. Appleton & Co., 1889; Montreal: E. M. Renouf. Professor Mills fully realized that in succeeding to the chair in McGill, vacated by Dr. Osler, he had a difficult task before him. No man could possibly put more enthusiasm and solid sincerity into his specialty than Dr. Mills brought to bear to secure the confidence of a critical Faculty and the respect of intelligent students. The result of his love-labour is seen, not only in the valuable work before us, but in an unremitting devotion, day by day, to concentrated investigation and research.

It is much easier for a full and enthusiastic teacher to amplify than to condense, and it will be gratifying to the busy practitioner, as well as the student, that Prof. Mills has wisely put his subject in a succinct, as well as interesting manner, that tempts one to read all when beginning to read any. His work improves upon other physiological works by being founded on the comparative method. It introduces biological science, and ventures into some of the most fascinating avenues of scientific study. It does not play with facts by the light of fancy, but it embellishes known facts by literary polish and excellent illustrations. The illustrations alone are worth double the price of the book. It bears out the author's reputation for original research, and it defers to recognized and recent knowledge. Among modern contributors to original research the author must be classed; and one of the chief features of this work is the certainty that it will revive among practitioners who have perhaps abandoned any full reading on physiology, an interest in the

subject. To students, it is the indispensable book of the day. It has been adopted as the text-book in McGill. The Quebec Dental Board has also adopted it, and we warmly recommend it to all Medical and Dental teaching bodies, for the clearness with which the author handles his life-work, for the beautiful typography and illustrations, and for the fact that there is no other one work in existence which as fully, and yet so succinctly, covers the field it occupies.

DENTAL MEDICINE: a Manual of Dental Materia Medica and Therapeutics. By F. I. S. Gorgas, A.M., M.D., D.D.S. Third Edition, revised and enlarged. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut St. (E. M. Renouf, Montreal), 1889; cloth, \$3.25.

Messrs. Blakiston have a well-merited reputation for their standard works for dental students and practitioners. Almost a complete dental library may be selected from their list. We do not think the "approval" of the National Association of Dental Faculties has in every case been judicious, in the selection of text-books for use in the schools of its representation. In some measure the movement has brought forth considerable plagiarism, and a lack of originality in matter and illustration. Bond's Dental Medicine was a good old stand-by in its day, and to a large extent a liberal contribution to our literature. The work of Dr. Gorgas, fills a niche very much felt by American colleges. Its 427 pages include introductory chapters on the action of medicinal substances; inflammation, digestibility of foods, weights and measures, topical remedies, the endermic and hypodermic methods, setons and issues, genera, and local blood-letting, doses, poison, the pulse, etc., etc. The Materia Medica and Therapeutics, are very complete from acacia to zinci sulphas.

We have just one fault to find with the author; a fault which is repeated in this third edition. He gives a list of forty-two authorities consulted, but both in the prefaces to the three editions, and in the list of authorities, he entirely overlooked the deep obligation he owed to Mr. James Stocken, L.D.S., England, author of the *Elements of Materia Medica and Therapeutics with Pharmacopæia*, published by Churchill, of London, in 1877, and appearing as a third edition before Dr. Gorgas' first. The close resemblance between the work of Mr. Stocken and that of Dr. Gorgas, is no detriment at all to the latter, but evidently our worthy friend of Baltimore, forgot when acknowledging his obligations to a long list of other authorities, the chief of the clan residing in London.

DENTAL CHEMISTRY AND METALLURGY. By Clifford Mitchell, M.D. Chicago: W. T. Keener, 96 Washington Street, 1890.

When the modern dental student discovered, on the shelf of an old bookstore, a copy of Piggott's Dental Chemistry and attempted to reconcile the chemistry of the past with that of the present, he perhaps got one of the best lessons in the scientific progress of the Profession within the last thirty years. We have hardly yet attained to that position when chemistry for the dental student will be distinctive from that of the medical student, but anyone familiar with the investigations of Dr. Miller, of Berlin, and other thoroughly scientific chemists, must admit that chemistry has become an indispensable adjunct, not only of the education of the student, but of the every-day active practitioner who seeks to improve the problems of practice. When Dr. Mitchell issued the little predecessor of this work, it seemed at once to fill a gap; but this enlarged edition is specially valuable, inasmuch as it has been rewritten, and is not a rehash. It includes the essentials of chemistry for dental students, general chemistry for dental practitioners, laboratory course in elementary chemistry for dental students, laboratory course in dental chemistry and metallurgy. Besides a concise arrangement of chapters on physics, chemical philosophy, inorganic chemistry, organic chemistry; the chapters of special interest to the dentist in practice are those on the Saliva, its physical characteristics, functions, etc.; the progressive experiments arranged by Prof. Salisbury, and chemical work in the dental laboratory, and complete course in salivary analysis. There is a freshness in this work which does not encroach upon any other of the many volumes added to our literature. It has been adopted as a text-book by the American colleges, and we recommend it strongly for use among our Canadian students and practitioners. It is beautifully printed and a credit to the publisher as well as the author.

TRANSACTIONS OF THE ILLINOIS STATE DENTAL SOCIETY, 25th Annual Meeting, May 13th to 17th, 1889, Chicago, H. D. Justi. There has always been a western freshness and independence in the proceedings of this Society. The Report of the Committee on Dental Science and Literature makes it lively for some of the recent additions to American dental literature: protests against the advertising cuts; the rehash of old magazine articles; obsolete methods of practice; improper use of technical terms, and,

in fact, is very much more condemnatory than even Mr. Servill's reiterated opinion in our last number. There is a good deal of valuable matter, which we hope to draw upon.

DENTAL METALLURGY: A Manual for the use of dental students, by Chas. J. Essig, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy in the Dental Department of the University of Pennsylvania. Second edition, revised. Philadelphia: the S. S. White, Dental M'fg Co., \$1.75; sent by mail on receipt of price.

Any one who has listened to Dr. Essig's lectures would expect to find in this valuable little work, a sensible and practical digest of all that is absolutely necessary for the dental student in this primary part of his studies; and as every wise man is a student, though he may have been in practice half a century, it is a book useful to everyone in the profession.

We believe that very much more attention is given in the mother country to training students thoroughly in this branch, than is devoted by dental colleges on this continent. Students are too much in a hurry to become operators. Most of them have cause to regret it, when the demands of a general practice fall to them. Dr. Essig's book should be thoroughly digested by every dental student.

A CHARMING SOUVENIR.—*The Youth's Companion* Double Christmas Number is a charming souvenir. Its delicately-colored cover encloses a wealth of stories and pictures that are intensely interesting to readers of all ages. Some of the features are:—"Christmas in a Wagon," by J. L. Harbour, a story of pioneer life in the Rocky Mountains; "A Double Decker," by Mrs. Frank Lee, a story for the boys, and another for the girls, entitled "Beth's Memorial Stocking," by Mrs. H. G. Rowe; an interesting description, by Emory J. Haines, of the famous "Minot's Ledge Light;" Arabella B. Buckley's "Sleep of Plants, and What it Means;" "Attacked by Cheyennes," by K. L. O. F. Wolcott, a story of wild western life; "A Christmas Night's Sensation," by Clinton B. Converse, and "Alice's Christmas," both fresh and appropriate to the season; highly beneficial editorials on "Thoroughness" and "Stanley's Return," with a beautiful page for the very young children, together with anecdotes and bits of fun, combine to make a complete treasury for the whole family.

DOMINION DENTAL JOURNAL.

VOL. II.

TORONTO, APRIL, 1890.

No. 2

Address.

*BY W. GEORGE BEERS, L.D.S.

MR. PRESIDENT, LADIES AND GENTLEMEN,—When I accepted the invitation to join the boys to-night, in a ceremony which might make the mouths of the founders of Canadian dental reform water with envy, I thought at first it was to be a quiet sort of family farewell, where one could unbend a bit, like teachers and pupils who both love football; and yet, where one's gray hairs would perhaps entitle him to talk kindly, like a father, experienced words of caution with the warmest words of cheer. I flattered myself that the task would be light and congenial, and that the happy graduates would endure me, because it was to be the very last of a long list of lectures they had survived, and because, too, they might hope to catch from one's confessions, some of the needed warnings which active practitioners have "learned in suffering to sing in song," and for which I know I would have been grateful when I first launched forth eager for the fray, to set the world on fire. You know there's nothing running to such waste as the burning passion to bestow advice. It is a perfect drug in the market of moral ethics. It is a possession with which even misers are extravagant. It would not be difficult then, to give our graduates the

*At the Closing Exercises of the Royal College of Dental Surgeons of Ontario.

benefit of one's own mistakes, in order that they might avoid them, and to point out those faults and follies of a professional career through which most of us have had for discipline to pass. It was formerly a superstition that every child should have measles, chicken-pox, and croup, just as the belief exists to-day in some parts of the Province of Quebec that physical life is not complete without variola. In much the same way, it seems to be a heresy to deny, that a man can steer clear of reefs and rocks against which the most of voyagers strike ; but were this true, and were the beacons and signals of no avail, would not every shoal and lee-shore of life be strewn with human wrecks, and many a hopeful heart perish in despair? There are perils of a peculiar character in the practice of dentistry, and pitfalls of more than ordinary obscurity ; there are duties a man will specially owe to himself and his own nest and nestlings, superior to those that can possibly belong to the public, however nobly unselfish, and willing a man may be to lay down his life, if needs be, for his brethren ; there are perplexities and temptations, and there are splendid occasions to do the duty of unselfish, earnest and truthful men. But, however parsimonious of self-praise, or prodigal of self-censure, the telling of all this would dispose us to be before our confreres ; we do not like to make a public exposure of our own imperfections, or even successes, before the patients.

And it was enough to take one's breath away to learn, at the eleventh hour, that I was to be permitted, for at least thirty minutes this evening, to be "intoxicated with the exuberance of my own verbosity," and in such a literary, legislative and university centre as this advancing city, and in presence of distinguished gentlemen, whose public life makes speechifying to them mere child's play, and who, if they talk in their sleep, do so, I am sure, with classic and Corinthian polish.

However, Mr. President, with all the dangers and drawbacks before me, were I to say that I am sorry to find myself here, then like Montaigne's page, I "would not be found guilty of telling the truth." It is indeed a great personal pleasure to be allowed to add another link to the long chain of my connection with the dental movement in Ontario ; to meet face to face and hand to hand, a new detachment of earnest and leavening recruits, bound in dentistry in this Province to do, not to dream, and who seriously mean in

zeal and honesty, to do some such service for their profession, and therefore for our great Dominion, as has been done for law and medicine by our University teachers, and for our trade and commerce by our educated agriculturists and merchants. We have lately commemorated in Ontario and Quebec the events which led to our first educational efforts twenty-one years ago, and I confess I like to look back on the coincidence, perfectly freed from any political thought, that the birth of this reform in Ontario was contemporaneous with that of the Dominion, and that when our statesmen were in session in Charlottetown discussing the union of the Provinces, our Ontario dentists were in session in Toronto, planning the reform and consolidation of the profession. It was a pioneer work, like that done by the first settlers of this Province along the shores of the St. Lawrence, Bay of Quinte, Lake Ontario and Lake Erie, when the rude log-hut, the yoke of steers, a pig, a gun and an axe formed the stock-in-trade, perhaps, of the fathers of some of the gentlemen here ; and we, whose lives are cast to-day in pleasanter places, have good right to revere and respect those old-fashioned days of sturdy hearts and wooden ploughs. There are a few practitioners still in our ranks who were practising dentistry in Canada before most of us were born, and when I have heard from their lips the struggles they had to endure, as they perambulated the country with their box on their back like modern rural peddlers ; when I even recall the regular custom in Montreal when I was indentured as a student, and was notarially bound not to reveal to our rivals "the secrets" of the profession ; when we contrast those days with the present free-offering which every respectable dentist makes of his knowledge ; when we compare the past in Ontario, within the memory of confreres who are here to-night, with the success achieved in its teens by this school, with the proud affiliation with one of the leading Universities of the Dominion, giving for the first time in the dental history of the Empire, a distinctive and unsullied dental degree, I feel that the responsible stewards of this institution have not only done an enduring service to the profession, but a practical one for the State. I have had constant and active association with the profession from that important epoch, and I know the sacrifices the promoters of legislation and education had to make. I was familiar with the unreasonable opposition of well-meaning sceptics, who had no more

faith that a dental Act of Incorporation would elevate dentistry in Ontario, than that a charter would avail to secure a railway to the moon. I remember the war-whoops of hate raised by a few, who condemned a principle in dentistry they unconsciously commended in medicine and law; and who, had they been in the wilderness with Moses, would, I firmly believe, have fought against the passage of the Ten Commandments, as an unnecessary and dangerous piece of legislation. Even many who to-day loyally acknowledge the value, and aid the objects of association, then stood silent in fear. It was thought by the most moderate opponent that legislation was impracticable; that the idea of a school was Quixotic, for "*Quis custodiet ipsos custodes*:" that it could become nothing better than a fickle and feeble imitation of the clap-trap system, which was then manufacturing Doctors of Dental Surgery over the border in one session of four months. It was said that a dental school in Toronto would have to pawn its parchments to pay its way; that it would have to hawk its degrees about the Province for sale, and, as was satirically said of the diploma of a foreign College, that it would thus "be enabled to get rid of its debt—by 'Degrees.'" Those were the prophets of despair, who seem to have lineal descendants in other spheres of our national life; whose crest should be "the white feather;" who have as many hands as Gyges to raise against the gods; and who, at least, seem like men standing on their heads, to see everything the wrong way. The success we see to-day is due to the fact that Ontario dentistry has leaders of quiet faith and earnest courage, who have quitted themselves like men. Had our friend Dr. Willmot and his associates shaped their actions on the fear or fury of obstructionists, you, gentlemen, would have had to pick up your experience in the Province in the old imperfect way, or cross the lines to get what you could not get here. There is neither exuberance of fancy nor exaggeration of fact in these statements. The gentlemen who shouldered the responsibility of conducting this school, did not imagine that the mere readiness was sufficient professional equipment, or that their duty should be set to music. They had not the presumption of the son of the Vicar of Wakefield—a chip of the old block—who, you remember, went to Amsterdam to teach the Dutch English, but who found when he got there that he had forgotten to learn Dutch. Your lecturers qualified themselves

to teach. You have received didactic instruction, in this first Dental School in Canada, equal to any you could get on this continent ; and if some features are not as yet made as attainable as in colleges in the United States, remember that one of those foreign schools has just passed its fiftieth year ; that others have had twenty-five, thirty and forty years of existence, as richly endowed institutions in large and populous States. And yet not one of these colleges has so far exacted anything like the high standard of matriculation, or the conditions of studentship demanded of students in Ontario and Quebec. The D.D.S. of Canada so far represents an educational standard as to preliminary examination, only surpassed by the requirements of the Dentists' Act in England ; and if we believe that general cultivation and a liberal education is as necessary to the highest sphere of success in medicine and law, it cannot logically be denied in its application to the highest attainments in dentistry, if our teaching, our associations and our literature are to expand. It is patent to us all that under the primitive system of training students, the profession produced many excellent men ; some whose native genius and ingenuity "burst the bars of invidious birth, and broke the force of circumstance ;" but the future of the profession will be settled on a higher plane, by the preservation, or even the increase of the standard of the admission examination. No fact in connection with education in the medical, dental, law, and even many of the theological schools of the United States, seemed to a Canadian more inexplicable, than the absence, until about twelve years ago, of any sort of preliminary. To such an extent was this neglect carried, that not only were thousands of men graduated as doctors and dentists, ignorant of the most elementary branches of an English education, but up to the last few years, diplomas were conferred upon men of foreign speech, who did not understand one word of the language in which the lectures were delivered. Though our American cousins have not raised the standard of the preliminary to that of Canada and England, we must congratulate them upon the proposed increase in the period of study ; and it will probably not be deemed altogether a breach of the unpretending modesty which in some respects we feel towards the older and more richly endowed United States schools, if we recall the historical fact that the first movement towards the abolition of a pro-

vision which recognized five years of any sort of practice as equivalent to one session, was the direct result of the peremptory action of the Quebec Board, in cutting off from recognition two of the leading schools for too elastic an interpretation of this provision. In a measure our humble efforts in Canada, even years ago, were fairly received over the boarder, but my conviction still exists, that the American diploma of D.D.S. had no claim for recognition until the abolition of the five years' clause, and the exaction of a preliminary. I think what I have said may, perhaps, elevate the respect you should entertain for the degrees you have received to-night; and it is well to remember that towards this school and the profession in Canada you now have reciprocal duties to perform. Have faith in your own Canadian school as you have in your own Province and in the Dominion, and if defects appear, do not imitate the folly of the farmer who, failing to reach the caterpillar, cut down the ancestral tree, under whose spreading boughs he had been soothed by a mother's lullaby. And if circumstances, which no man can always foresee, force you to seek foreign founts of inspiration, or perhaps of life-work, even though the collective wisdom of the "Associated Dental Faculties" refuse to recognize the plea of your parchment for professional union, generous and noble cousins, whose warm hearts and open hands have often aided our movement in Canada, will be the first to wish you "God speed."

Is it not a suggestive reflection that dentistry, as a recognized science, is the youngest of the professions, and that there are gentlemen in this room, in the prime of life, who were born before the first dental association, the first dental college, and the first dental journal? Medicine can trace its history back to the early periods of Grecian civilization. The medical schools of Cos, Rhodes, Cyrene, and Croton date back from 400 B.C. Hippocrates, "the father of medicine," was 500 B.C. Law goes back to the schools of jurists in the reign of Tarquin, 448 B.C. Enthusiastic dental antiquarians, who will never be happy until they believe they have disinterred excavators and pluggers used in the Ark, try to make some bold statements of Herodotus, and passing remarks of later writers, give color to the belief that ancient Egypt was the cradle of dentistry. It was declared that gold fillings had been found in the teeth of mummies from Thebes, but it was discovered that, like other parts of the mummies, the teeth

had been merely gilded. It is a fact, however, that the idea of replacing lost human teeth by substitutes of bone or sycamore wood set in gold, has been traced to Egypt by modern discoverers in ancient sarcophagi; and, I dare say, that some of you may have seen and handled the specimens in possession of our friend and confrere, Dr. Barrett, of Buffalo. These do not, however, substantiate any claim whatever that the work was done by specialists in dentistry, but more certainly by the ordinary gold and silversmiths, who, for instance, worked in the great synagogue at Alexandria, and who, as in Jerusalem and other places, divided the working of metals into separate branches. It is easy for you to draw upon your imagination—that is what it is for—and picture to yourself an Eastern beauty standing before the framer of a buckle or an ear-ring, and, as she perhaps smiles at his blandishments and blarney, discovers to the goldsmith the loss of an incisor. With instinctive ingenuity, and no doubt a lively sense of friendship to come, he offers to carve a substitute of bone to fill the gap, as he carved the buckle, and then fasten it to the adjacent teeth, as he would fit the ear-ring, by golden loops. Still, we must let our antiquarian dentists amuse themselves; and when you remember that the Jewish Rabbins aver that the worms of the grave have no power over Abraham, Isaac, Jacob, Moses, Aaron, Miriam, Benjamin, and David, it is not unlikely that some Chicago dentist, disguised as a Turk, strolling through Hebron, should excavate some ancient molars from a burrow, and believing they were those of Abraham, Jacob, and Miriam, contribute them to the attractions of the next "World's Exposition." Or perhaps, some of our Toronto graduates, when hunting deer or fishing for trout in the Laurentides, which Sir William Dawson's fossil discoveries verify as the oldest parts of Creation, should discover that Dental Bridge work is contemporaneous with the *Eozoon Canadense*.

But, seriously, the progress of dentistry—especially instrumental and mechanical—within the recollection of the first students of this school, has been marvellous. Young practitioners would no more think of accepting most of the theories and methods of treatment prevalent twenty years ago, than they would adopt the vagaries and materia medica of Celsus. And yet, I fear, we go into raptures without sound reason, over the claims that many make as to the progress of the purely scientific on this continent. We cannot

deny that the most scientific and profound literature in our specialty is altogether foreign to our hemisphere ; that until certain books were compiled to order, some of which are bare-faced plagiarisms of British or German productions, American dental colleges were taught the science of dentistry from these foreign text-books. Most of our advancement has been made along mechanical lines, the mere prosthetic, and little or nothing in the investigation of those embryonic conditions which lie at the base of the predisposing causes of poorly calcified teeth. No complaint of this sort can be made as to the study of the relation of fermentation to caries, the fungi of the mouth, etc., so carefully investigated by Dr. W. D. Miller, of Berlin, Germany ; but when we reflect that the special disease of caries is increasing in all civilized countries, not merely like a transient epidemic, which we prepare to battle with until we can safely predict its disappearance, but as a physiological certainty in by far the largest proportion of healthy children of healthy parents ; when we consider the fact that probably not a hundred people could be found in this city between the ages of fifteen and twenty who have escaped diseased teeth, and that the majority of children do not attain their sixth year free from this calamity, when we reflect upon this connection of caries with a period when nutrition is most active, and "decay" should be anomalous, it would seem that there is here a neglected field for scientific research. I look with horror on such statements, that in one dental office, or rather *abattoir* in New York, 15,000 teeth were extracted last year ; that from four to five tons of gold, forty-five of silver and tin, besides several tons of other plastics, were used in the United States alone last year ; while it is estimated that 6,000,000 of artificial teeth were inserted, and 20,000,000 of human teeth sacrificed by neglect.

Where is this to end ? Is the hypothesis, founded upon the laws of descent and adaptation, that the offspring of those who have lost their teeth early, might be born without tooth-germs, to become probable ? Is there to be a generation born without teeth, as they say our distant ancestors predicted that which has come to pass, that their distant successors would be born without tails ? Can we grow better teeth ? Can we do anything to control nutrition during the formative period ? What are the disturbing and favoring influences of calcification ? Do you not think that the imper-

fect character of dental education on this continent has had the most to do with our solid ignorance on such important questions?

As the youngest country on this continent, we have no reason to be ashamed of our position. Naturally enough, the organization of the profession occupied the chief attention. Quebec's effort in 1842 to secure legislative protection died still-born. It followed the lead of Ontario in 1869; but if you had the misfortune to be obliged to deal with its Local Legislature, and to meet the many peculiar intrigues with which hungry lawyers and unscrupulous applicants are able to confront the Association, you would thank your stars more than you do, that dentistry in this Province is not at its mercy. With the two official languages, and a French majority, it gives me the greatest pleasure to say, that in the twenty-one years of our existence we have never had one syllable of national discord, and that French and English are as honest friends to each other as brothers can possibly be. Manitoba, British Columbia, and the North-West Territories now have legislative protection. New Brunswick has made a move, which, we trust, will pull all the Maritime Provinces into line.

I feel I have exhausted you, if not my time. Some of our guests may think that, as a body, we vastly overestimate our professional significance and work; but I am reminded of a recent remark of Her Majesty the Queen to Sir Edwin Saunders, her Household Dentist: "Yours is a very important profession, for while some need the skill of the oculist and aurist, almost all need that of the dentist." If in any sense dentistry in Canada is popularly depreciated it may be largely our own fault; but I know no better way to change this misfortune, than through the education and appreciation of medical men, who come into earlier contact with family ailment, and who really have exclusive opportunity to warn and advise as to the care and importance of the teeth. With some such co-operation, the ethical and financial questions would solve themselves, and it would not be a dentist's impending fate, as was said of the English curate, that he will likely become "the best educated pauper in the parish." As the graduates of this school increase in number, and spread throughout the land, this educational intimacy will become more easy; the public will learn to believe that the loss of the teeth is a loss of function; that their preservation from youth to old age is possible, and that there is something better

under the sun, in the way of artificial substitutes, than the "Cheap Jack" vulcanite fiend has the ability to supply.

It may not have occurred to you that, as a profession, we deal with the most prevalent disease of the age; a disease which may begin in the cradle, and follow ninety per cent. of its victims through the seven ages to the grave. Do you not think then, that if the Canadian public as intelligently appreciated their teeth as our neighbors, that Canada could maintain twice the number of dentists? And yet we know that, as a fact, it is a poorly paid profession. All through the old Province of Quebec, the forceps of the country physician suffices for the dental demands of ninety-five per cent. of the rural population; and one would imagine that the sneer of Robespierre during the French Revolution, when he was asked and refused to spare the life of the eminent chemist, Lavoisier, whom he sent to the guillotine, had become paraphrased: "The Republic doesn't want chemists."—"The Province doesn't want dentists."

Gentlemen graduates, before we part, let me say a word on a subject which is always in order, from the mother's lap to the school-room; from the University halls to the very pulpits. We may differ as to what, and where, and how Christianity should be interpreted. We are sure to sympathize with Charles XII., when, after failing to make twelve watches run together, he was struck with the folly of trying to make all men think alike on matters of religion. But if we are sincere, above baser party ties, to promote the weal of the land we live in, that it might become great, glorious and free, then neither race, nor religion, nor color can separate us from the duty we owe to do some patriotic service for our land. What boots it to the soldier in battle whether or not the comrade beside him worships at his shrine? but it matters much to him whether or not he will be true or traitor. I sometimes fear that a portion of our political press and the army of our political tramps would bring us to that state of society to which Dr. Arnold, of Rugby, alluded in his History of Rome, "where patriotism becomes impossible—the inner life being so exhausted as to inspire the citizen with neither respect nor attachment." I feel I owe no apology for reminding you that, as good citizens, you owe loyalty and patriotism wherever you dwell.

It is wise and worthy to start into professional life hopefully and honestly. You need not think you can make short cuts, or take

crooked ways. If you do, you will lose time, and will have to come back and start again straight. It is better to have too much enthusiasm in your profession, than too much contempt ; better to broaden your life-work and thought by collateral culture, than to circumscribe it by narrow views. It is better to build castles in the air—and doubtless you'll build many—than not to build at all ; better to sing Psalms with the professional Davids, than grunt Lamentations with the professional Jeremiahs ; better every day to turn introspective thoughts as a moral duty, in search of your own peccadilloes, than to think you can win popularity or renown by insidiously hunting for those of others. It is better to be even a second or third class dentist, than to imagine that you and the Premier are misplaced, and that he is in your place ; better, and happier, and healthier, a thousand times, in the long run, to feel that your every-day duty, for which you've here been trained, is exactly the appointed work God has given you to do. And if you feel impelled to kick up a dust in Olympus, and cheek the gods, and teach humanity what nobody else has been able to tell it, go first and talk it over with some quiet woman—your mother, if God has spared her—and I fancy you'll come back with your metaphorical tail between your legs. Remember we are here to-night just to lift you tenderly and cheerfully out of your professional cradle. We have taken away your feeding-bottle ; we've covered you with parchment, and given you "God bless you." In fact, professionally, you've been born, baptized and married all at one stroke : and take now one of the first, oldest and best hints that has been given to man since the world was created : Take a silent partner—you probably have already one in view—who will love you, and encourage you, and help you, and swear by you, even if you go home like a cowardly brute and beat her with a stick.

As a guest who rejoices in witnessing to your marriage to dentistry, let me tell you that even in the days of your professional honeymoon, you will have days of doubt and difficulty, but dutiful courage and cheerfulness always bring palmy days. You may believe me that you could not be happy unless you were sometimes miserable, just as you'll never have true success unless you have occasional failure. You will get your dose of discipline like the rest of us, but stand it like men, and you'll confess that you got it just where it was needed when the clouds roll by. You'll have

days of despair, perhaps, when you'll lie on your back and almost wish you were in your coffin, but duty and courage transmute them into days of happiness, when you wouldn't change this lovely earth for any premature hope of heaven. It will often compensate you in arduous work, in which no man in Canada ever became rich, to feel that you do humanity a daily service ; that every day you prevent or ease pain, and that if you give pain, it is only that pain may cease. Now, gentlemen, to work. There is your duty. The dentist waits in his office. The procession will soon begin for you. The healthiest infant, as well as the invalid, the richest as well as the poorest ; the worthiest scholar, the wisest *savant*, the greatest statesmen, even the kings and queens of earth must walk in, take their place in the chair, and submit to sit before us, with open mouth. I think it is quite time for me to close mine.

Original Communications.

Dentistry in the Canadian North-West.

By W. D. COWAN, Regina, N.W.T.

The dentists of the North-West Territories certainly cannot be reproached for inactivity and unprogressiveness. It is but as yesterday since white men took possession of this great land, and yet already we find it dotted all over with thriving towns and villages, every one of importance of which is now supplied with at least one generally competent dentist. It was not always thus, though, for until quite recently the country was overrun with men who claimed to be dentists, but many of whom no doubt knew but little of a dental college examination, and who were unsettled and irresponsible to their patrons. Thus for a time the dental profession had, to a great extent, lost the confidence of the people, and it will yet take a long time to reinstate our profession in its proper place in the eyes of the people. We who are now here are reaping the fruit of the seed sown by our predecessors, and in hundreds of cases where dentistry—true dentistry—might successfully be practised, our patrons will permit of nothing but absolute malpractice.

They no doubt feel that it is better to be rid forever of any possibility of trouble than to repeat former experiences. However, it is my impression that, ere long, the North-West Territories will as proudly boast of her dental profession as can the people of the older Canadian Provinces, (and certainly they have reason to be proud), for we have here already in this vast country men who are not only proud to acknowledge themselves dentists, but who are gifted with plenty of push, energy and ambition, not of that selfish nature which looks only to self-advancement, irrespective of the annoyance it causes to his fellow-practitioners, but to the advancement of the profession as a whole.

Best of all, however, it becomes apparent immediately on acquaintance, that the dentists here have the highest possible conception of what a dental education ought to be, and of the position a thoroughly qualified dental profession ought to occupy. Truly, then, we have good grounds for believing that the North-West will yet be a strong factor, in helping to maintain the leading position in the world as held by the Canadian dentists.

Of course, it will be a long time before we can well support a dental educational institution out here, but until such time as we can have one, I think no fear need be expressed of us discriminating against our excellent Royal College of Ontario, by admitting to practice here graduates of other colleges of inferior standard. That is the sentiment I have always heard expressed throughout the Territories ; and although the standard, I am glad to say, has been changed in many of the colleges since our first " Dental Ordinance " was drafted, yet I think all will agree that we have done very well for a beginning (although we did not get one-half of what we asked) and that we have established ourselves on a good solid, all-Canadian basis. I believe these Territories can support a greater percentage of dentists than any other part of Canada (in fact, there are more dentists here now per population than in any other part of the Dominion). It may be that a great part of the people, living as they do at a considerable distance from any dentist, have neglected their teeth in the past, and are now compelled to attend to them ; but allowing for this, and considering only those who are favored by locality, I must express my surprise at finding the condition of mouths I have found here. Judging from my experience in Ontario and five of the American States, I must say the people

here are the best dental patrons I know of. It is asserted that "the higher the civilization and the higher the living, the greater the dental requirements." If such is the case, then the North-West Territories must hold a very exalted position, and be very comfortably situated. There is no stinginess about our patrons here; they want their work done well, and are willing and ready to pay for it.

There is one thing I notice here which calls for mention, and that is the excessive number of abscessed teeth. I could easily understand it were they generally very badly decayed, but the number of abscessed teeth is entirely out of proportion to the number possessing any outward lesion, or at most a small cavity. I so often see teeth abscessed and for which I can give no other reason, that I have concluded that it is due to the extreme rarity of the atmosphere compelling people to breathe entirely through their mouth, it being impossible on a clear cold day to breathe through the nostrils. The extreme cold air coming so often in contact with the tooth and causing so many changes of temperature, I believe, kills the pulp; result—abscess. If it is not this, I should like some of my fellow-practitioners to enlighten me, as to the reason of the death of the pulp in so many cases where there is no cavity, no canal formation and apparently no other cause.

However, such teeth seldom lie dormant any length of time, but generally make themselves known and felt immediately after the death of the pulp, and in such cases, of course, they are easily treated. That such is the case, I think, is evidenced by the fact that often—very often—when these teeth are opened into, a small amount of pus is found, but when this has been removed my experience has been that, by using a brooch, a considerable portion of the pulp can be taken out dead but sufficiently intact to allow of its removal. Now this, I do not think, would occur had the pulp been dead any length of time, and did it occur but occasionally, I should not feel surprised; but, as I have met it here so much more frequently than in other localities, I think it worthy of mention.

The North-West Territories of Canada Dental Society are called together for their first annual meeting, to be held at Regina on July 1st and 2nd next. It is expected every dentist in the Territories will be present, and amongst the most important works.

that will be proposed will be the making of the Society an educational body and the appointment of a committee to secure information with regard to the teeth of our aboriginal Indians, before civilization will have advanced so far upon them to effect any change. So far, my experience with the Indians and half-breeds has been somewhat limited, and to make it unlimited would be anything but pleasant, for they have frightfully dirty mouths. To clean their teeth, of course, is a thing they never do. As a general thing the jaw of the Indian is massive, the alveolar process being of extreme thickness and strength; and that the structure of their teeth is better and stronger than that of the white man I am thoroughly convinced. I myself have never seen a pure Indian with a decayed tooth, and in this I am supported by Dr. Dodd, of the Mounted Police here, who has spent five years amongst them; and he asserts that in the five years he has never seen a pure Indian, living in Indian style, that had a decayed tooth, but he does assert that he has lanced "gum boils" (Medical parlance) for them; so that I would infer that the Indians are also subject, to some extent, to the same trouble as I have already referred to as existing amongst our white population here, viz.: death of the pulp without any corresponding lesion.

I have extracted only a couple of teeth for half-breeds, but I must say this division of the family have not by any means the teeth that their aboriginal predecessors had. The half-breed teeth are not good, but occasionally very bad, and especially where their surroundings are anything respectable.

One young lady, a half-breed, who had been reared the greater part of her life in one of Regina's best homes, enjoying, I presume, all the luxuries of civilized life, has teeth that are presenting every appearance of decay in at least a dozen different places, while some of them have already gone so far that nothing but the outer shell of enamel is left. One of these I had the pleasure of filling, although she came to me to have it extracted. Seeing a good opportunity for experiment, I cleansed the tooth thoroughly, and found a perfectly healthy and live pulp entirely exposed. I did not resort to either arsenic or capping, but mixed my amalgam and inserted right on top of the pulp. She gave signs two or three times during the process of being hurt, for I pressed it down pretty hard, but she went away with it perfectly easy, and no further

trouble has been experienced since. The last time I saw it the filling was perfectly sound, and on that occasion I also noticed that those teeth which were only commencing to decay when first I examined them, were now decayed considerably, they decaying equally as rapidly as is common among the white population.

Two other half-breeds of about eighteen years, who have been most of their life working as servants for white people, and living as servants generally do, have teeth equally as bad as the first case. Their teeth were of a somewhat chalky nature, and five of them contained six cavities. These I filled, and as yet the fillings are good.

All of those whom I have been able to examine, and who live as near as they can to the manner of the white people, have a decidedly poor tooth for their race, much worse than those half-breeds who live a semi-civilized life, and the latter much worse than the pure Indian. But even those half-breeds who follow generally the life of the Indian have not as good teeth as the Indian, so that I am forced to the conclusion that not only does the manner of living seriously affect the tooth, but also that the children do not always inherit the mother's teeth.

Dentistry in Prince Edward Island.

By J. S. BAGNALL, D.D.S., Charlottetown, P.E.I.

In this fair and fertile Province of Canada, dentistry has not yet attained the standing it is entitled to. Here, at present, the wants of something like 120,000 people are ministered to by seven dentists; and, so far as the law is concerned the graduate from an office is placed on exactly the same footing as the Doctor or Licentiate of Dental Surgery. In short, the young man who has spent a few weeks in an office has, legally, just as much right to practise the profession as the man who has spent both time and money in mastering the details of the profession. It scarcely need be said that the consequences of this legal looseness are generally as disastrous to the mouths of the patrons of such novices, as they are annoying to the duly qualified practitioner. In Ontario, Quebec and British Columbia the laws governing the practice of dentistry

are very good, and in the neighboring Provinces of New Brunswick and Nova Scotia the people are moving in the matter of securing better protection for both dentists and patients. Perhaps Prince Edward Island will shortly make a move. Here also, I may add, the click of an electric mallet has never been heard, neither has the thorough examination of a set of teeth with the electric light ever been made. It is true the dental engine, the automatic mallet and all standard anæsthetics are used. The principal inducements offered are cheaper work in one office than another, some special kind of gas, rubber or other material used and some wonderful office secret?

But as the world moves on so must dentistry in this Province. Even now the horizon seems to be brightening up, indicating better days to come.

Alveolar Abscess.

By J. G. ROBERTS, L.D.S., D.D.S., London, Ont.

An alveolar abscess is a cavity containing pus, with or without a fistulous opening, having its incipency between the external and internal plates of the alveolus.

CAUSES.

(1) Putrescent pulp; (2) tartar accumulations; (3) necrosed tooth or root; (4) carious bone; (5) necrosed bone; (6) foreign materials, as broaches, fillings, or perforations, etc.

Alveolar abscesses are most likely to occur in those persons of a manifestly inflammatory diathesis, or where there is a local inflammation from some local exciting cause. In cases of constitutional predisposition the abscess in time assumes a chronic character, secreting and discharging pus continually, generally accompanied with little pain, though soreness is usually felt around the tooth affected.

Abscesses may be either acute or chronic, according to length of duration.

Symptoms of acute abscess: Violent throbbing pain, redness,

Synopsis of paper read at London, Ont., June 28th, 1889.

heat, swelling and fluctuation, with sense of fulness in tooth from gases arising from putrescent pulp. These symptoms last from eight to ten hours to three or four days.

The patient usually suffers from prostration. Tongue is coated, and rise in temperature is noticed. In chronic cases the changes take place more slowly. Pain is less severe. Infiltration of pus into the surrounding tissues, particularly in persons of strumous diathesis.

Alveolar abscesses may discharge pus: (1) Through canal of tooth; (2) at edge of gum between root and surrounding tissues; (3) through external or internal plate; (4) into antrum of Highmore; (5) back into pharynx.

TREATMENT.

Remove cause. If from tartar, then remove tartar with suitable instruments, being careful to leave no small particles below the margin of the gum. If abscess be caused from sanguinary calculus, then remove all foreign particles below the gum and inject a stimulating astringent application, as H_2SO_4 (aromatic). This will dissolve small nodules from the root, and also stimulate the parts to healthy granulation.

Several treatments are usually necessary to restore parts to their normal condition.

Sometimes H_2SO_4 (aromatic) is not strong enough to accomplish the object desired. Then H_2SO_4 30% or 40% may be employed. If abscess be caused from necrosed or carious bone, tooth or root, thoroughly remove all diseased bone, being careful to scrape bone down to the healthy part. Here care should be exercised in selecting suitable antiseptics. $HgCl_2$ (1 in 1,000), carbolic acid (1 in 40). In cases of weak constitutions it is necessary to give constitutional treatment; tonics, etc., to assist nature. The iron and quinine preparations are frequently employed. If abscess be caused from foreign materials, as particles of broaches projecting through apical foramen, remove these and treat to restore the parts to normality.

Probably the most frequent cause of alveolar abscess is putrescent pulp. The first part of treatment is to get rid of all putrescent material. If pulp has died under a filling, open pulp chamber thoroughly so that free access may be had to all roots. Stir up putrescent nerve, and wash out with warm water.

When canal has been thoroughly opened and cleansed, press walls of abscess together to evacuate pus.

Wash parts thoroughly with warm water, and inject a solution of carbolic acid, bi-chloride of mercury, or per-oxide of hydrogen. Pump hydrogen per-oxide up canal with hypodermic syringe or cotton wrapped around broach until there is no effervescence.

Insert a small rope of cotton loosely into canal, and leave for a day or two.

If abscess have a fistulous opening, inject creosote or strong solution of chloride of zinc through canal with hypodermic syringe until the solution passes out through the fistulous opening. This solution should be strong enough to burn off the glary membrane lining the sac of the abscess, and allow healthy granulations to take place.

If abscess form on the root of a tooth that has been treated and filled, we may apply palliative treatment to abort the abscess. If this will not do, then stimulate to suppuration. If the abscess return, drill through process and remove the abscess and sac.

Synoptical History of the Dental Art.

By CHAS. A. MARTIN, L.D.S., Ottawa.

Sometimes patients ask how far back does the origin of dentistry as an art date. Many believe that half a century ago very little was known on the subject. Others give as the extreme limit of the origin of the art, one hundred years. In order to give an intelligent answer to these questions, I sought for old works where information could be gathered. The one selected as containing more information than any I have seen, was published in London in the year of 1846, by James Robinson, Surgeon Dentist to the Metropolitan Hospital, etc., of extracts from which this paper is principally composed. Assuming that some of my hearers may not have had opportunities of ascertaining facts concerning the origin of our art, I deemed it would instruct them, and interest all, by compiling this synoptical history.

The origin of medicine, like that of many other arts, is involved

in considerable obscurity. To heal the sick, mitigate the pangs of suffering humanity, and stand between disease and death, were considered god-like attributes ; and, therefore, the ancients, who leaned to the theological rather than to the natural truth of things, affirmed medicine to be a divine emanation and impersonated it firstly in Apollo, and next in his son Æsculapius ; and thus its early history is mixed up with mythology and poetry.

Although we cannot imagine a state of society so happy as to be free from pain, disease, and death ; although accidents, the changes incident to the growth and decay of the human body, the invasions of pestilence and the casualties of battle, must at all times have called attention to medicine, and rendered the practice of the art a necessity, still we have no authentic history of its rise and early progress. Eusebius mentions Atholes, an Egyptian monarch, as having written several treatises on anatomy ; but the existence of this king is doubted by others ; and Thouth, an Egyptian, who, according to Diodorus, lived B.C. 2,000, is generally supposed to be the first who wrote on medicine, which in his time was not cultivated as a separate art, but was practised indiscriminately by priests and warriors, poets and philosophers.

Although the increase of luxury, and consequently, of attention to personal appearance, must have rendered the subject of dentistry one of considerable importance ; and although the eye and ear had long been objects of particular observation and separate practice ; yet it is not till the time of Hippocrates that we meet with any notice of the diseases of the teeth, or of those who practised the art of dental surgery. This is more extraordinary, as the significance of these organs, to say nothing of their ornamental or useful functions, was acknowledged in a remarkable manner by the ancient Egyptians, so that one of their most severe and infamous punishments consisted in the abstraction of a front tooth. There is no doubt, however, that the manufacture of artificial teeth and other branches of dentistry, existed after a fashion, much earlier than history informs us. The loss of a front tooth, whether by disease or not, would naturally, under any circumstances of Egyptian law, give rise to unpleasant suspicions, and every exertion might be expected to be made to supply the deficiency. Accordingly, Belzoni and others have discovered artificial teeth in the sarcophagi of the Egyptians. These, it is true, are rudely made,

and from being of wood, are ill adapted for performing mastication ; nevertheless it may fairly be inferred, that their effect on the articulation of the voice, and the support they afforded to their natural brethren, would suffice to point out dentistry as a pursuit for the ingenious and mechanical.

We have historical evidence, that in the palmy days of Greece and Rome, the diseases and general appearance of the teeth met with considerable attention. At the commencement of the Christian era, we find, in the writings of Celsus, very explicit instructions respecting several important operations on the teeth ; and during recent excavations at Pompeii and Herculaneum, various dental instruments have been discovered, much resembling some of those in use at the present day.

Aristotle speaks of forceps for extracting the teeth. Pliny also and Martial mention various tooth powders ; and the wearing of artificial teeth evoked the satire of more than one Roman poet. (Martial makes habitual allusions to artificial teeth as worn by the ladies of Rome in his time.)

Among the Greeks, a peculiar affection, called stupor of the teeth, is particularly described in connection with the presence of tartar. This people looked upon dentition as a mysterious and significant event ; and those who died before its fulfilment were denied the funeral honors of the adult, and ignominiously buried, instead of being burned in the usual manner.

As a distinct art, however, dentistry received but little attention from the ancients. The writings of Hippocrates and Galen, which formed the medico-dental text-books, contain receipes for electuaries, powders, and elixirs for beautifying the teeth, but nothing on what may be called the proper art and science of dentistry (dentism this author calls it).

In the early part of the eleventh century, Albucasis, an Arabian physician, wrote on diseases of the teeth, and gave drawings of a number of instruments used in his time for extracting, scraping, and the other dental operations then in practice. But it was not till the end of the sixteenth century that the art began to receive that undivided attention to which it is entitled both by its difficulty and usefulness.

No less than thirty-eight treatises on the subject were published about that time. These abound, indeed, with what is nowise useful

at present, but still the spirit that produced them is an evidence that the subject was beginning to be considered of importance, and that time and experience alone were required to raise dental surgery to its proper standing among the arts.

The first attempt to classify diseases of the teeth was made by M. Fouchard, of Paris, who has been denominated the father of dental surgery. Before his time, the practitioners of the art seem to have considered the teeth merely in their mechanical phase, taking little account of them as complex, organic structures, entering by their own vitality into the formation of the living body. M. Fouchard had the merit of directing attention not only to the construction and separate treatment of the teeth, but also to the indications which, in common with the adjacent parts, they furnish of the general health.

This was an important advance in the subject. For that the teeth not only represent the apparent, but also the *innate* fundamental constitution of individuals, is unquestionable; nay, so intimately are beauty and firmness in these organs connected with health, that the celebrated Delabarre (to whom we are indebted for an excellent work on the subject), recommends those mothers who have constitutionally bad teeth to refrain from suckling their children, lest they entail not only bad teeth, but debilitated constitutions on their offspring; and he points out, that in choosing a wet nurse, "her eyes should be lively and animated, her hair and eyebrows brown or light-colored; her lips red; her teeth sound and good; her gums hard and well colored." We before mentioned that, by the end of the sixteenth century, thirty-eight treatises had appeared on the teeth. France, in the 17th century, had also its Muller, Martin and a few others. The first idea of porcelain teeth is due to a French apothecary as early as 1774 (by Dr. Jullen, in *Dental Science*).

But so much had the subject grown in consideration at the end of the eighteenth century, that no less than one hundred and fifty-eight works connected with it had been given to the European public. To enumerate these works would be inconsistent with this paper, but it may not be amiss to notice a few of the most important. Thus Bunon published in 1723; Menton in 1746; Le Cluse, in 1755; Bourdet, in 1758; Bunon again in 1759. In 1766, the celebrated work of Jourdain made its appear-

ance; and in 1770 Thos. Birdmore produced a work on the teeth, which, by its value and importance, obtained him the appointment of Dentist to George III. From 1766 to 1768, Robert Woofendale, a pupil of Birdmore, practised in the city of New York—the first regular dentist, it is said, in this country. In 1784, Dr. James Gardette, a Frenchman by birth, was established in Philadelphia, and remained in practice there forty-five years. He was the first to apply the principle of atmospheric pressure to sustain artificial teeth in the mouth, which he discovered in 1800. John Greenwood, said to be the only dentist in New York in 1790, struck up a gold plate by swaging in 1799, and claims to be the first person who had done so in America. He was Washington's dentist, and made him several sets.

About this period the famous John Hunter turned his attention to the subject and presented the world with his "Natural History of the Teeth," a production which, while it enlarged the sphere of dental knowledge, piqued the pride and aroused the ambition of the English practitioners of the art.

The inaugural dissertation on the structure of the teeth of men and animals, published in 1798, by Robert Blake, gives evidence of the rapid strides that has been made in the anatomy and physiology of the teeth. The most important of the works at the time are those of Fox, 1803; Bell, 1829; Nasmyth, 1839; Owen, 1840; also those of Snell, Waite, Robertson, Jobson, and Koecker; besides which, we might enumerate several smaller works by Saunders, Clendon, White, and others, many valuable detached papers in transactions and periodical publications.

France, in the nineteenth century, had well-qualified dentists and writers for the times. Delabarre, Desorabode, Maury, Laforge, Duval and many more. Within the last century dentistry has advanced far more rapidly in the United States than in any other country. Thus, we have Gardette in 1821, and the talented Hudson, the friend and companion of Tom Moore, a noble Irishman, skilful and thorough in his work; the first, as is now supposed, to fill the fangs of teeth to the apex; Parmley, L. S. Parmley, and Flagg, in 1822; Trenor, 1828; Fitch, 1829; Brown, 1833; Spooner, 1836; Goddard, 1843; and in 1845, Dr. Harris, one of the editors of the *American Journal and Library of Dental Science*, published a most able and comprehensive work, entitled the "Principle and

Practice of Dental Surgery," which in 1866, had reached its ninth edition. And many other productions on the subject have appeared in America, and especially in the periodical just alluded to.

That some of the opinions of the ancients respecting the teeth should be useless for our purposes is by no means surprising. Hippocrates describes them as glutinous extracts, from which the fatty part has been burnt up by heat, and affirms they are harder than the other bones because they have no heat in them. It is hard to appreciate the meaning of this at the present day. Aristotle, however, (who, as is usual on all subjects, has some excellent generalizations respecting the teeth of man and animals,) declares them to be the only bones that grow through the whole of life; because, he says, they would soon be worn away by attrition, unless they were continually renewed. This, at all events, is intelligible and suggestive, whatever may be thought of the conclusion which Aristotle deduces from it. He adds, that the growth is manifest in those teeth that have lost their corresponding opposites in the other jaw.

In the *Dental Cosmos* of January, 1887, is a translation from a little German book published in 1541, and supposed to be the earliest volume devoted to the teeth. The *Cosmos* says: "The style is so quaint, the description so peculiar, and the directions so droll, that we feel sure of the appreciation of our readers in affording them an opportunity of its perusal. We have placed it in our book-case beside the "American System of Dentistry," in illustration of *Then* and *Now*.

A word respecting the present state of dental art and science. The conditions of success appear to be not different in this from what they are in other branches of knowledge and practice. They are all summed up in one phrase, *United Labors*. Whatever of discrepancy there is in the works of our chief authorities, is greatly owing to the isolation in which they studied, and to the want of a general means of collating their ideas. Again, whatever of progress we find in that country which takes the lead in the dental art, appears to be due to an absence of prejudice and jealousy which allows free communication of ideas, and association of common interests among the members of the profession. For the Association of Dentists in America has not only given its members generally a status in society unknown to dentists elsewhere—has

not only repressed those characters who intrude themselves upon the public here (England) and given merit its station, and honesty its pre-eminence, but has also contributed largely to the advanced state in which dental science stands in the United States.

In Canada, there still lingers to a large extent this disposition to isolation, and of fee competition. Our colleges and associations have, no doubt, broadened the views of individual dentists, and will ultimately (though apparently slowly) bring about the desired epoch when we shall be united in our labors.

That a change—a great change—has taken place in Canada within the past thirty years, is quite evident to those practising then and at the present time. Then, the individual dentist was all absorbed within the narrow limits of his office and laboratory in the production of his own material, instruments and appliances; keeping secret any discoveries or inventions he might chance to make, in order to, if possible, excel his collaborator. It were laudable to excel if the object be the general advancement of the profession; but, unfortunately in many cases, selfish desire to draw custom and obtain local popularity was the sole aim. The mechanic's son would obtain a situation with a dentist to work in the laboratory, and in a surprisingly short time he knew it all (or at least he thought so), and would launch out with a kit of instruments of his own make, encased in a box, and travel the country—for in those days it required a large territory in order to obtain sufficient patients. Occasionally meeting with intelligent people of an inquiring mind, who asked questions concerning the disease of teeth, he soon discovered the necessity of studying the subject; some, more studious than others, did so, and became prominent, with a good reputation; others, relying solely on the silver piece, mercury bottle, and a file, for filling teeth, and a key of Garengot and a lance for extracting, had to give up and give place to the one who got a furnace, moulded and baked his own mineral teeth with forge, crucibles and rolling mill, manufactured his gold plate and solder, swaging into shape and fitting to the mouth plates that have given satisfaction and comfort to the wearer for upwards of twenty years, and obtained for the mechanical artist a wide reputation that endures to this day. Others, who had the means at command, and were ambitious and progressive, went to dental colleges in the United States, and returned with a diploma, giving

them considerable prestige over their less fortunate collaborators. Desiring to bring dentistry from a perambulating workshop up to the dignity of a profession, they established a college in Toronto, with the laudable object of perfecting the future dentist, and had an Act passed in Parliament compelling practising dentists to obtain a license, the requirements of which you are all familiar with. About this time vulcanite or dental rubber came into use, (I remember well the clumsy, ponderous vulcanites then used). The cost of dental plates was considerably lessened, causing a new era to be inaugurated. Teeth with dead pulps that heretofore were filled and a hole bored into the chamber, to give vent to gases and decomposing debris, were quickly extracted to be replaced with ones more certain of success; and rumor has it that sound and serviceable teeth were sacrificed to improve the symmetry, and sometimes to increase the pecuniary value of the work. The abuse of rubber and amalgam by unscrupulous mountebanks, caused the high grade dentist to decry the use of such vile mercury salivating materials. Much correspondence ensued, a thorough analysis and extensive tests were made, resulting in the retention of these materials for dental purposes. The manufacture of these materials have been continually improving, and are to-day a great benefit to a large portion of the people. The introduction of teeth with artificial gums in blocks, greatly enhanced the beauty of rubber plates; instead of joints between each tooth, five joints only in each set are required to be adjusted, enabling the skilful artist to closely imitate the continuous gum process which so beautifully resembles perfect nature. Atmospheric pressure has been a grand stride forward over the cumbersome spiral springs; also relieving natural teeth from the numerous clasps which have destroyed so many.

The pivot tooth with the hickory peg has given place to numerous ingenious devices in artificial crowns, and modes of fastening, all superior to the wooden peg; and as the wooden peg has been known to last for twenty years and more, with the increased knowledge acquired for preparing roots, the improved cements, and with gold and platina pins and screws, the modern pivoting process should be everlasting; and a greater scope is given to the dentist for producing artistic beauty. Within the last ten years most wonderful progress has been made; gold filling is rendered com-

paratively easy, by the improved methods of preparing the gold ; the oxide and phosphate filling materials are a great acquisition ; the amalgams are not the eyesore they were wont to be in the past, although some are advocating copper fillings ; they certainly are not pretty, too much resembling the old coin silver fillings, still they are beneficial in particular cases. It would make this paper too long and perhaps tedious, were I to enumerate in detail the numerous inventions, both in material and appliances, which have been introduced to the profession within this short period. I will merely name celluloid, cast metals, and aluminum as being used as bases for artificial teeth, with apparent success, by their advocates. Gold is again coming to the fore, in the bridge-work process. That some of these new modes will be enduring, and become permanent fixtures in the profession, is hopeful ; but it is evident that some are on the wane, the boom has passed, expectations are not realized by the experience of time. Implantation is the latest (a demonstration of which is promised at our clinics). If this method proves a permanent success, it will certainly be preferable, in many cases, to plates, or *bridge-work*, *nous verons*. But why continue? The many dental periodicals now published by our United States brethren (to whom we owe so much for our present status) are teeming with able editorials and cleverly written articles on every detail pertaining to our profession, filled also with illustrations, so well executed as to give a clear conception of the various modern appliances.

Up to the present time the whole modern system has been carefully compiled, and given to us in three volumes, entitled, "American System of Dentistry." As has been shown, the progress of this branch of art, from the earliest period, has kept pace with the physical defects, and consequent remedial requirements. The new recognized profession of the dental art, has proven to the world that it is a necessity—in fact, indispensable. Members of our profession are vying with each other, to produce something still better than anything now extant, in order to ameliorate the sufferings of their fellow-beings, and by ingenious devices, replace defective organs with artistic substitutes, and rendering contact with one another more agreeable and pleasing to the eye, thereby fulfilling, in part, a duty due to humanity.

I may here remark on the great benefits to mankind conferred

by the advanced dental art. Picture to yourself the condition of society in the (so-called) civilized countries, if artificial restoration did not exist. The contorted features, sunken lips and cheeks ; nose and chin trying to make both ends meet ; imperfect articulation, making speech difficult, and painful to listen to ; isolated, elongated, irregular and fragmentary teeth, giving a carnivorous appearance to a once pleasing, smiling countenance. These are but a few of the many features that could be enumerated, to show in what a fearful condition society would be without the aid of dental art. See the changed being, once these defects are removed ; the form becomes more erect, the step more lively, the action of the body more graceful, and the whole adorned with a pleasing open countenance.

Again the woman who, having become inured to the monotonous drudgery of the household, becomes sometimes careless of her personal charms, her teeth are consequently neglected ; but let her become a widow, and ten to one the dentist is the first applied to, for repairs, and a new lease of life secured. A perfected symmetrical anatomy prevents the mind from seeking seclusion.

What will be the next discovery? What other new departure will be forthcoming? What will be the final? cannot be conjectured. Let us contemplate the ideal dentist of the future. The dentist formerly acquired his art in the office of his predecessor, and it was not considered necessary for him to study in any more extensive sphere. As time went on, and the lucrativeness of the calling attracted more and more able and cultured men, aspirations rose higher and higher ; dentists began to demand a more extensive education, and the dental colleges were founded. I have already referred to the benefits accruing from the establishment of a dental college in this Province ; every dental practitioner should be an advocate of collegiate education. He should be an open and determined champion of all that tends to elevate the status of the profession ; for, by so doing, he will not only add to his own reputation, but will serve his vocation well, and guard the community from the arts of the empiric. Educate the members of a profession and you give rank and position to the profession itself. In this day of religious strife, let us hope that our graduates who are to be the future professors in our colleges, will devote their entire energies to develop skilful and competent dentists.

Will natural teeth continue always to be filled? or will a time come when they will be invariably restored by artificial incorruptible substitutes to or additions thereto? Will gold always be used to fill teeth? Hear what the *New England Journal of Dentistry* says about the gold supply of the world, it is computed to be about \$200,000,000 every year. About \$1,000,000 worth of this gold is put into the teeth of people, and as this gold is almost invariably lost from further consumption, it might not be quite uninteresting to inquire if that is right, from an economical standpoint. It will, of course, not make a great difference to us at present what becomes of the gold. The supply will be sufficient for our wants and those of our children; but the question may come up, do we not do something wrong against future generations following us, by burying every year about two tons of gold in the teeth, and finally in the earth.

The plastic filling material now in use is not durable. That a cement will be discovered superior to any now extant, I have no doubt. I had formed an idea that a substance like Portland cement might be found durable, and intend to experiment on it; but if I or some one else succeed, nothing new will have been discovered, since I find the following:

“CLASSIC DENTISTRY.—Dr. Xavier Landerer, of Athens, sends the following to the London *Chemist and Druggist*: ‘It may be safely asserted that the ancients cleaned their teeth and used tooth-powder. If the necessary attention were given, relics would be found in the graves of the women. The word *odontotrimma*, the tooth-scourging stuff or tooth-powder, is found in ancient Greek, and in the Greek Pharmacopœia is applied to tooth-powder. It is interesting to find that the ancients had made some advance in dentistry. A friend of mine (now dead) occupied himself in collecting ancient Hellenic skulls, wishing to show that they did not differ in shape from those now carried in Greece. Among several hundreds of these skulls, some, perhaps, 2,000 years old, we found two with ‘stopped’ teeth. One was filled with a mass as hard as stone, which, on analysis, proved to be hydraulic lime, made from volcanic ash, Santorin earth, and lime. Marvellous as it may seem, the hollow of one tooth in the other skull had been filled with gold thread or gold leaf. The metal used was pure. The skull itself, though deprived of the stopping, is now in the Archeological Museum.’”

As a caution to those who might imagine that they had discovered something new in mechanical dentistry, let me read this clipping:

"An English dentist advertises in the *English Mechanic*, 'Teeth without a visit to the dentist,' and says he has invented an apparatus (which has obtained her Majesty's Royal Letters Patent in England, also France, Germany, Belgium, America, and the Colonies, May and August, 1878), enabling persons at a distance to take the necessary impression of their own mouths, which can be forwarded by post, and the required artificial teeth supplied without a personal interview. This is a step in advance of the dental art as practised in this country.'"

The implantation of teeth was certainly a great surprise and astonishment to me; that such a process can be permanent I can scarcely believe yet, still it is being done and proving satisfactory in some cases. Wishing to astonish my hearers, I conceived the idea of suggesting the implantation of metallic bolts or pins, so that artificial dentures could be supported, with removable nuts or hinged fastenings, easily managed by the wearer. To my astonishment, I found in the *Dental Cosmos* for March last, a description *with illustrations*, of a method for implanting metallic capsules! For this same purpose, still this is old—listen :

DENTISTRY IN POLYNESIA.

"The dentists of the Solomon Islands, though somewhat heroic in their treatment, are said to be but little inferior to their European brethren. When a man wishes to have a tooth or two replaced, a couple of assistants hold him firmly, while the operator, propping the patient's mouth open with pieces of bamboo, proceeds down along the gum until he has cleared the surface of the jaw-bone. Into the cavity thus made along the gum he inserts a piece of tortoise-shell or mother-of-pearl of the requisite length, and then binds the gum up on each side of the new tooth with a kind of vegetable glue. After a few days' feeding on liquid diet, the wound generally heals; and it is a common sight to see old men with almost all their teeth replaced in this fashion."—*British Journal of Dental Science*.

Many suppose that bridge-work is something new; but it is not. The insertion of artificial teeth has been practised in China ages before it was introduced into Europe. The material used is bone or ivory, and the tooth, having been sawn and filed into the proper shape, is fastened to the adjoining teeth by a copper wire or catgut string. If two or more teeth are required, they are made in one

piece and a hole drilled the whole length, through which a double string or wire is passed, which loops over the natural tooth at one end, and is tied to the tooth at the other. The cost of a single tooth will be from five to ten cents, and the charge for half a dozen would be from thirty cents to half a dollar.

May we not justly exclaim, there is nothing new under the sun? Our thoughts and conceptions are of nature and we cannot go beyond it. After exhausting all resources in mechanics and art, will the future dentist turn his attention towards the production of better natural organs? By precept and example, will he commence to repair the existing physical defects, by as much as he is capable of removing the causes that are violating nature's laws, and be satisfied to receive the gratitude of a perfect progeny?

Electricity as a Motive Power in Dentistry.

By PETER BROWN, L.D.S., Montreal.

The question of providing some motive power for the dental engine has led many inventors to investigate the merits of the electro motor, in its application to the dental engine. Electricity is coming rapidly to the front as a motive power, and the rapid strides made in its various applications have not been lost sight of by those interested in applying this wonderful agent to various uses in dentistry.

The electro motor has many advantages, strongly indicating it as the only perfect machine for applying power to the dental engine.

Prominent among these is the small space required, comparing it with other motors (as an illustration, it may be mentioned that a one H. P. motor requires a floor space of only twelve inches square); then it can be placed out of sight of the patient; it is noiseless, clean, and requires very little attention.

To dentists living in cities or towns where a supply of electric power cannot be obtained from a central power station, the use of batteries must be resorted to, but this must not be looked upon as a very great objection. Many improvements have been made in the construction and durability of galvanic cells, rendering them

much more cleanly and free from unpleasant odors, and less troublesome to keep in proper order, than the form of cell heretofore in use. Batteries can be obtained to-day that will supply for a month or more, without any further attention than the addition of a little water occasionally, all the power required in operating a dental engine.

Where a supply of electricity can be taken from a power station, there is no end to the uses it may be put to in the dental office and laboratory.

With an electric motor properly adjusted to the engine, one may work through the most fatiguing operation with ease. With the foot-power it is necessary, as we know, to stand on one foot while using the engine, which is a very tiresome position in itself, but when the other foot is obliged to work the treadle of the engine, it is doubly tiresome. While with the motor you may take any position the nature of the operation will allow you, and at the end of a long day's work, you will look upon the electro motor as one of the greatest boons that modern invention and sciences have given us.

Another advantage of the electro motor is the perfect steadiness it gives the cutting instrument. There is no swaying of the body as there is when moving a treadle, and it can be run slowly without that decidedly unpleasant jar, the instrument receives every time the crank of the driving-wheel passes over the centre.

It is maintained by good authorities that one of the best methods of excavating sensitive dentine with a minimum of pain, is by the use of a very sharp bur run at a high speed. Now, in order to get a high speed with the ordinary engine we have to exert quite a little force, and in doing so the body is moved about, and the steadiness required is much disturbed ; while with the motor a speed of from 2,000 to 5,000 revolutions per minute can be easily obtained, by the simple operation of closing a switch, leaving the operator perfectly steady and at rest.

Many will object to introducing the electro motor so near to the chair, saying that it looks too much like machinery ; but were there not objections on the same ground made to the dental engine itself on its first introduction, and how many dentists are there to-day without that valuable instrument? When the advantages of the electro motor become better known among the dental profession, there will be few who will be without it.

Then there is the objection of introducing the electric current from a power station into our houses, on the grounds that it is dangerous to life and property. The dangers from this source have been very much exaggerated ; the low tension current is not at all dangerous when properly insulated. We have a deadly agent in our houses now in the form of illuminating gas, and serious consequences may result from a leaky joint or improperly closed tap. Yet we do not go about with fear and trembling when we use this agent in our houses. When electric wires are covered with proper insulating material, the fluid they carry is as safely confined as the gas or water in their respective pipes. The amount of knowledge required for the successful operation of electrical appliances in dentistry is not necessarily very great. Certainly, a fair amount of information will help one wonderfully out of a difficulty, and will prove valuable in successfully using electricity in practice.

This force is coming into such general favor and use, that every one should have a little general knowledge of it, which may be easily obtained from one of the numerous text-books on the subject. The time is not far distant when we shall have our houses heated, lighted and ventilated by electricity ; the obnoxious gas jet will give way to the clear and steady light of the incandescent lamp, which gives us light with a minimum of heat, and does not vitiate the atmosphere of our rooms, and fill our lungs with carbon. This lamp is to be strongly recommended in making examinations of the teeth, or in operating on dark or cloudy days when the light is unsteady. With proper fixtures the lamp may be made to concentrate its light on the mouth, and also shaded from the eyes of the operator. The incandescent current may also be used to run the electric mallet, the electro cautery ; and applied to a fine platinum point is the best means of drying out root canals before filling.

Packing and Vulcanizing.

By B. H. CATCHING, D.D.S., Atlanta, Ga.

Pack with dry heat ; set the flask on the oil or gas stove, with flame turned low ; turn it over occasionally. When hot enough to begin the evaporation of water from the plaster, lift the flask from the stove and turn the screws ; place the reverse side to the heat

when returning to the stove. A few minutes and a few turns, it is closed ; the rubber is not scorched, and the plaster has been made harder. Dark joints are less liable to occur if, in connection with the dry packing, vulcanizing is done in steam.

Put in the boiler about half an inch of water ; place in it a small block of wood, on which set the flask to keep it out of the water. Raise to the vulcanizing point very slowly, say forty-five minutes, at least, to reach 320° . The piece will have to be cut from the flask, as the plaster gets very hard and does not granulate after several days, as is the case with water packing and vulcanizing.

Sometimes, in packing this way, a loud exploding report is heard ; be not uneasy, it is only the discharge of pent-up steam. Aside from other advantages, this method is cleanly. Keep the vulcanizing boiler scoured clean. A little dilute sulphuric acid will aid this materially.

Modelling Compound.

By J. ———, St. John's, Newfoundland.

A friend who visited me lately, and to whom I gave some of my home-made modelling composition, suggested to me to send you some samples, and hinted that the profession in Canada would like the recipe. I may say, that while I use plaster of Paris a great deal, I find many occasions to use modelling compounds, and that for pattern plates and temporary fitting of plates, I use it exclusively. The composition is as follows—but I must frankly say that it is not my own, but that I received it from a generous confrere in England some years ago :

French chalk.....	14 parts.
Gum kowrie	8 "
Stearine	4 "

Melt the latter first ; add the second ; then the chalk, not too much at a time. Stir it constantly. Color with carmine, and pour it into saucers in thin cakes.

By the way, if your proposition to form a Dominion Dental Society takes shape, count Newfoundland in, for though she isn't in the Confederation yet (but will be), she counts in the progress of dentistry in British America.

The Dental Porcelain Art.

BY W. GEORGE BEERS, L.D.S.

The following will give a fair idea of an improvement in operative practice that even in its short existence to date, has made wonderful progress, and seems destined to occupy a leading position in the art of dentistry ;

It means that both children and others can have their teeth filled in a reliable manner, with durable and permanent fillings, and not have to sit in a dental chair for several hours with their mouths filled with the disagreeable rubber dams, to say nothing of the long and tedious malleting necessary to fill a tooth with gold.

It means that this new method reduces the necessity of using the disagreeable rubber dam to a few exceptional cases.

It means that all operations are not only more durable, but, most important, free from pain or fatigue either to the dentist or his patient, and that many operations heretofore not possible are brought within the range of most satisfactory results.

It means that when your teeth have been repeatedly filled with gold, and as many times given out, leaving such a small remnant of the crown that there is no more hope for the usual methods, it is then the porcelain process comes to the rescue, and provides an opportunity for the very best and most perfect work.

It means that the most thoroughly decayed, irregular and undeveloped teeth present conditions more favorable for complete and artistic work than those that are only partially decayed, and in such cases where but a few scattered teeth and roots are remaining, by means of the porcelain process, an entire restoration may be provided, filling the intermediate spaces by bridging from the sound teeth, using the latter as a support on which to fasten them, and thus avoid the necessity of wearing a plate over the roof the mouth.

It means that the rage for extracting teeth so common among men of low degree in our profession, will necessarily become unpopular, and that the men who make a wholesale business of it will have to change their practice or change their business

This class of men fail to realize that it requires the strongest steel instruments and the most powerful arm to wrench nature's pegs from thoroughly established sockets, representing a retaining means of hundreds of pounds to the square inch, and yet they will persist in destroying the very best foundation as a practical means of attaching partial sets of teeth, thus reducing the possible chance of wearing an artificial denture from hundreds of pounds to the feeble adhesion of the saliva, which at best is never more than a few ounces, so that a cough or sneeze will many times eject the entire denture from the mouth. Want of proper knowledge of the method of treating diseased teeth, and lack of skill to make the attachments on the remaining teeth, poverty and ignorance, create the demand for the man who will prefer to destroy the human face divine, and then give in return a chromo set of ready-made teeth for the munificent sum of \$5.

The process of burnishing metal foil into the cavity of a decayed tooth to secure an impression, and then melting either gold, silver, or any suitable metal, or porcelain, glass, rubber, etc., into the mould, to form a solid section or plug, and the cementing the prepared section into the cavity, or amalgamating it into the cavity of a decayed tooth by means of a new combination of plastic metal that is absolutely impervious to the action of the fluids of the mouth. Also the forming of a metal jacket or overcoat of very thin metal that fits over a defective tooth and completely envelops it, and placing thereon a thin coat and a veneer of porcelain, and then placing it in the muffle of a furnace and melting the enamel so that it becomes united to the prepared jacket, which when finished forms an enamelled cap. It is then filled with plastic cement and pressed over the defective tooth, and becomes thoroughly established, thus restoring the defective organ, so that it is not only useful for mastication, but also presents the exact color and characteristic appearance of its fellow members.

Also the building up of the roots by certain methods especially adapted to this class of work. A particular plan of first lining the cavity of the tooth with an adhesive metallic foil previous to inserting fillings, crowns, etc. Certain forms of porcelain veneers and porcelain artificial crowns, to be attached to the roots of the teeth. Certain forms of gas furnaces, constructed especially for the convenient use of the dentist, that will enable him to perform opera-

tions with great facility. This, together with twelve other patented devices, all pertaining directly to the art of dentistry, are the inventions of Dr. C. H. Land, of Detroit, Mich.

The improvements contemplate methods of practice that aim especially to preserve, restore, and to save the natural teeth, provides facilities by which dentistry may be elevated from the barbaric methods of extraction, and made to assume a position in harmony with kindness and humanity.

That the long and tiresome operations of filling teeth with gold may be dispensed with, not only protecting the defective organs in a much superior manner, but also making them assume their original appearance in shape, size, and color.

It means that the setting of artificial crowns and fillings may be established with cements that are absolutely impervious to the action of the fluids of the mouth, and that they will not only be held in position with a wonderful tenacity, but, in addition, the plastic metal adheres so firmly—both to the walls of the cavity in the tooth and to the porcelain or gold section or porcelain crown—that it is utterly impossible for moisture to work between, and in case it did, the material is indestructible, so far as the secretions of the mouth are concerned.

In this new process the union of the amalgam with the glass or porcelain, exerts an adhesive force of over one hundred pounds to the square inch of surface covered. This enables the dentist to attach very thin veneers of porcelain to old amalgam fillings. Also, porcelain cavity stoppers may be made to fit into the cavity of a tooth, and then amalgamated in place and held with a wonderful degree of tenacity. Artificial crowns of porcelain may be amalgamated to the roots of teeth without the necessity of resorting to the use of pins, posts or screws, the adhesion of the amalgam being much stronger than the usual platinum pins. In connection with the amalgam no cements of any kind are used; it is strictly a metallic union, therefore absolutely impervious to the action of the fluids of the mouth.

It means that the excessive use of the ordinary silver or amalgam filling, which turn so black, may be relegated to the things of the past.

It means that the use of the ordinary white filling as a material for the attachment for crowns may be reduced to the minimum.

Our Canadian College.

Royal College of Dental Surgeons of Ontario.

The annual meeting of the Board of Directors, for the purpose of examining students and transacting routine business, was held on the 4th March and three following days. All the surviving members were present. Since the last meeting Dr. Chittenden, President, had died. The vacancy was filled by the unanimous election of Mr. H. T. Wood, of Toronto. On taking his seat Mr. Wood was also unanimously elected to the presidency, an office which he had previously filled for several years.

The Secretary presented 32 applications for final examination, 39 for intermediate, and 1 for master of dental surgery.

In view of the large number of papers to be read, it was quite clear that justice could not be done them in the limited time during which the Board usually sat. It was decided, therefore, to dispose of the papers of the final class, and take those of the intermediate class home, and make a report at a later date through the Secretary.

As usual, there were several petitions from students who had not in all respects literally complied with the requirements for admission to final examination. The only one, however, of importance was that of the son of the late Dr. Chittenden, who in the effort to preserve the practice of his father for the benefit of himself and his mother and family, had felt compelled to absent himself from lectures to a much larger extent than twenty per cent., the maximum allowed by the rules. Considering all the circumstances, and the service which Dr. Chittenden during his life had rendered the profession, it was decided to admit him to examination.

The feeling of the Board was that it would be wise in the future to have the examinations conducted by a presiding examiner, the papers sent to the examiners, and the meeting of the Board held after these had been read and valued. As, however, their term of office was nearly expired, the matter was recommended to their successors.

As most of the successful students were remaining to write for D.D.S., it was decided to have public closing exercises of the

College. The President and Secretary were appointed to co-operate with the students and faculty in the matter.

On motion of the Secretary, Messrs. Davis and Fisher were appointed a Committee to report at a future meeting on the relations of the School of Dentistry to the Board.

The Secretary reported that, in accordance with the resolution adopted at the last meeting, he had forwarded to the Secretary of the National Association of Dental Faculties an official application for the admission of the Royal College of Dental Surgeons to membership in the Association. The required documentary information was also furnished. These were promptly acknowledged by Dr. Cravens, the Secretary, and also by Dr. Abbott, Chairman of the Executive Committee, to whom they were sent by Dr. Cravens. No information whatever has been received as to the action of the Association in the matter. The Board, while feeling that it had not been treated courteously by the Association, directed the Secretary to correspond with Dr. Marshall, the present Secretary of the Association, as to the fate of the application, and if it had not been finally refused to allow it to remain for further action.

The names of those who passed the final examination will be found in report of the closing exercises in another column.

The following is the result of the intermediate examination: Passed—H. I. Stingle, J. H. Fell, A. H. Mabee, W. R. Wilkinson, O. Lillie, W. F. Corbett, E. R. Howes, J. T. Willmott, Wm. Richardson, J. A. Black, J. E. Wilkinson, S. W. Frith, M. A. Morrison, M. J. Sisley, H. Hart, D. C. Smith, H. D. Boyes, S. Anderson, H. Clarke, W. R. Winters, D. Stirton, O. W. Daly, C. H. Lount, J. J. Simon, J. McBride, Thos. Coleman, F. B. Ross, G. J. Musgrove, G. S. Martyn, C. W. F. Lennox, Thos. Irish, C. D. Greene, J. E. Holmes, T. C. Trigger. These have to take supplemental examination in October: F. R. Porter, W. H. Marrs, G. Henderson and H. E. Harris, in physiology; F. R. Porter and T. D. Fawcett, in chemistry; F. A. Lackner and W. H. Marrs, in surgery; T. D. Fawcett, in *materia medica*; H. E. Harris, in operative dentistry.

After a humorous valedictory address by Wm. Mills, L.D.S., on behalf of the graduates, Dr. J. Branston Willmott, Dean of the Faculty, delivered the following address to the class:

MR. PRESIDENT, STUDENTS AND LADIES AND GENTLEMEN:

Before entering upon the duty specially set down on the programme, permit me a word on two points.

Our lives are largely made up of events which tend to awaken emotions of sadness and sorrow, and of events which stir within us sensations of gladness and pleasure.

As we assemble here this evening there comes to many of us a feeling of sadness and sorrow as we miss the familiar form and cheerful face of him who was for many years the honored President of our College. During the year, Dr. C. S. Chittenden has ceased from his labors and entered into rest. Though in our professional and social gatherings we shall see his face and hear his kindly voice no more, his memory will long be lovingly cherished by those of us who have had the pleasure and privilege of close association with him. Among the pleasant events of this occasion is the presence with us of Dr. Beers, of Montreal, a gentleman who has long enjoyed a continental reputation as a brilliant and racy writer of both general and technical literature, and who is more widely known in professional circles, both in the Old World and in the New, than any other dentist in the Dominion.

The fact that he is here to deliver *the* address of the evening is especially gratifying, inasmuch as it assures you the pleasure of listening to an accomplished speaker, and reduces the responsibility devolving upon me to the delivery of a few parting words to the students.

And now, Mr. President, I come to the discharge of the duty to which you have called me.

Gentlemen of the Graduated Class of 1890:

On behalf of the Faculty, I return sincere thanks for the kind words to which Mr. Mills, speaking for you, has given utterance. The exceedingly pleasant relations which have existed between the members of the class, and between the class and us, during the past session, have been very gratifying to your teachers, and for them I assure you that the attendance, attention and attainments of the class have been in an unusual degree satisfactory.

Permit me to express the hope that these friendships may long continue unbroken.

“ Like pilgrims on the hills of life
We cross each other and are gone.”

Possibly we shall see little of each other in the future; let us hope that we will all have the kindest recollections each of the other.

To-day you have received from the President, in the diploma which certifies your legal right to practise your profession, the first-fruits of reward for many weary days and nights of toil. You have to-night been admitted into the ranks of an honorable profession. Allow me to remind you that to your keeping that honor has to-day been committed. We send you forth to your life's work with a confidence that you will steadfastly maintain that honor. May we never have occasion to regret that even as regards one of you that confidence was misplaced.

I am reminded that this very day most of you have been writing, side by side with the students of the Medical Faculty, for the honors of our Provincial University. I desire to impress upon you that this University recognition of dentistry as a liberal profession, and the ranking of its graduates in this department with its graduates in other departments, lays upon the members of the dental profession, and especially upon those who have received a University Degree, an additional obligation to guard well its honor and integrity.

The life of a student, while not by any means free from cares and anxieties arising from various sources, is nevertheless full of hope and pleasant expectation. For you these days are over, and you are entering upon the more serious work of life. The months, it may be the years, which immediately follow entrance upon professional life are, not unfrequently, in many respects the darkest, the most trying, the most discouraging, the most dangerous of a man's whole career. Reasonable expectations are not promptly realized, visions of success fade away, unexpected difficulties are projected into the path. “ Hope deferred makes the heart sick.” This weary, almost fruitless waiting is what “ tries men's souls ” and the metal of which men are made. Upon this stage you are now entering. Happy for you if it be short, still happier for you if that trial comes not upon you. It is wise, however, for you to enter upon it realizing to the full what may possibly be in store for you, and be prepared to meet it manfully.

It is not necessary, probably, for me to exhort you to join in the Scotchman's prayer, "Lord, give us a good opinion of ourselves," but I would urge upon you to cultivate such a confidence in your ability to succeed by legitimate means as shall enable you, during this trying period of which I have spoken, to look calmly on at the unprofessional methods of your *confrères* without feeling any temptation to join in them.

When you have been duly certified by the properly constituted authority as "qualified to practise dentistry," take it for granted that an intelligent public will believe that you are "qualified," and abstain from particularizing your own attainments and advantages, for in so doing you but suggest to outsiders that you must have very grave doubts yourselves, as to your fitness for the duties you have undertaken. And in many cases, probably, the "doubt" would be very well founded.

It will not require a very prolonged study of the dental advertisements in the daily and weekly press, even of this city, to convince the inquirer that dentistry is not yet out of the mire and dirt of quackery and charlatanism. With better advantages and grander opportunities than had those who went before you, let it be your aim to help manfully and earnestly to lift it to a higher plane. Determine to achieve professional success by honorable, straightforward methods or not at all.

In a very important sense it is true that "all things come to him who waits," but he must wait in the industrious, intelligent use of the appropriate means. We exhort you, therefore, to enter upon your professional career with becoming modesty, with a patience that knows no weariness, an industry that knows no lagging, a persistence that makes no note of hindrances, a determination to succeed that recks not of failure, an integrity of purpose that knows no flinching, and if the stuff be in you, enduring success will speedily be your reward.

We have hitherto spoken only of professional success, but this ought to be regarded as a means to an end, rather than the end itself. That life may be classed as wasted which merely succeeds in accumulating wealth and assuming the importance which its possession secures. The gathering together of riches for the service of self merely is a mean, sordid and petty employment for an intelligent, responsible and immortal being. We urge you to a higher,

nobler, purer ambition. That man has made the greatest success of life who has developed the most noble personal character and has brought the greatest amount of blessing to his fellow-man. As I look around the circle in which I move, the thing which grieves me is that so few young people, even those who are most serious and intelligent, give any time, or thought, or attention, to preparing themselves for service to their fellows in any capacity; every energy is devoted to making money or to preparing to make money, or to mere pleasure and amusement.

We would that you should have a higher aim, a nobler purpose. While seeking to obtain the fullest measure of success in your chosen calling, do not devote your whole time and strength to the service of self.

“Not enjoyment, and not sorrow,
Is our destined end or way,
But to act that each to-morrow
Finds us further than to-day.”

Be something more than dentists; be citizens, philanthropists, Christians. The ambition to serve your fellow-citizens in some capacity is a proper and worthy one. The gratification of this ambition means self-denial, preparation, work. “Opportunity waits for the man who is prepared.” All around us are opportunities for usefulness with wide open doors, waiting for the man or the woman who is prepared to enter in.

Find me a municipality whose affairs would not be better administered if citizens could be found who, with an ambition to serve their country, as councillors or aldermen, had given time and energy to preparation for this service. Where is the church that could not be more efficiently officered if men were available who had given time and care to preparation for this form of service? In the staff of every Sabbath-school, in the board of every charitable institution, in the management of every benevolent association, there are places always open to those who have fitted themselves for such work. I want to emphasize the thought that in all the infinite variety of ways in which one may serve his fellows, the “opportunity waits for the man who is prepared.”

I speak to-night to young men just entering on the active duties of life, to young men whose future is in their own hands. Your position in the community in which you reside will in the years to come

depend very largely upon the course which you mark out for yourselves at the outset.

Humanity, civilized, intelligent humanity, may be roughly divided into two great classes—those who are always “waiting for something to turn up,” and those who have determined to turn something up, and have set more or less diligently to work to do it. To which of these classes will you belong?

The great American humorist once remarked “that some men were born great, some men achieved greatness, and some men had greatness hove onto them.” In this democratic country it is safe to say that in the sense in which the word is used none of you were born great. Amid the strife and competition of life you are not likely to find other men putting themselves to serious inconvenience to force greatness upon you. If, therefore, you are to rise at all in any department of life’s activities above the level of your associates, it is only by persevering adherence to a well-formed purpose that such pre-eminence can be secured.

“Let us, then, be up and doing,
With a heart for any fate ;
Still achieving, still pursuing,
Learn to labor and to wait.”

Other tempting lines of thought suggest themselves, but time will not permit.

And now, gentlemen of the class of 1890, as the tie which has so pleasantly bound us together during the months that are past is severed, and you go forth to carve for yourselves “niches in the temple of fame,” in the fullest and best sense of the expression, we cordially bid you “*God speed*.”

Dr. W. Geo. Beers, of Montreal, delivered the closing address of the evening.

An excellent musical programme was furnished by Napolitani’s orchestra.

Royal College of Dental Surgeons.

The public closing exercises were held on the evening of March 28th, in the Normal School Hall.

The exceedingly unpleasant character of the weather prevented the friends of the students attending in as large numbers as was expected.

Dr. H. T. Wood, President of the Board, occupied the chair, and after Rev. Dr. Kellogg had offered prayer, in a few words called attention to the advance made in dental education since the incorporation of the profession in 1868.

The Secretary of the Board presented the following graduates, who received from the President the Diploma of the College conferring the title of L.D.S., viz :

G. P. Allen. —	C. M. French. —	A. F. Pearson. —
J. A. Armstrong. —	Benjamin Gollop. —	William Revell. —
D. Allen Black. —	W. R. Hamilton. —	Wesley Richardson. —
Thomas Butler. —	J. H. Johnston. —	M. W. Sparrow. —
Geo. F. Belden. —	Oliver Martin. —	Jas. F. Simpson. —
M. F. Binkley. —	Archibald Milloy. —	W. H. Steele. —
A. Stanley Burns. —	Sylvester Moyer. —	W. J. Trotter. —
Ira Bower. —	William Mills. —	A. W. Thornton. —
Milton Cavanagh. —	W. D. McLaren. —	F. W. Twedde. —
J. F. W. Chittenden. —	Walter F. McPhee. —	J. J. Wisser. —
Denton Dulmage. —	M. G. McElhinney. —	

Mr. J. P. Marshall, a Licentiate of five years' standing, received the Diploma conferring the title of Master of Dental Surgery.

In the absence of the Hon G. W. Ross, who was detained by his parliamentary duties, the medals were presented by Dr. W. B. Geikie, Dean of the Trinity Medical College.

The medalists were presented by Professor Teskey :

<i>College Gold Medalist</i>	O. Martin.
<i>College Silver Medalist</i>	D. A. Black.

Editorial.

We regret very much that some selections of Dr. Beacock, for which he claimed no originality whatever, and which, he informed us at the time, were chiefly taken from *The Practical Dentist*, appeared under the head of "Original Communications" in our two last numbers. The compilation was complimentary to our confrere, and if any blame is to be attached to any one, it is certainly not to Dr. Beacock, who was perfectly ignorant of the use we intended to make of the printed copy, which he uses to educate the community in which he lives.

A Valuable Work.

Our friend, Dr. B. H. Catching, has retired from the *Southern Dental Journal*, as editor, intending to issue annually, on subscription only, at \$2.50 a year, "Catching's Compendium of Practical Dentistry," a compilation of all the practical matter of the current dental literature during the year classified, indexed, and bound in one volume. As a reference book it will be invaluable, and will be an ever handy dental library in itself. The first volume will appear in January, 1891, and will be an epitome of all the practical matter of the current year. The wonder is that no one seems to have thought of this excellent idea sooner.

The Expansion of Canada.

It is really too bad that this Dominion will grow and prosper in spite of croakers and cowards. The Maritime Provinces are waking up to the necessity for Legislative Dental Protection, and very soon their legislatures will do what Dr. A. C. Cogswell asked them to do twenty years ago—give the public and the profession mutual protection. On another page we publish the ordinances passed in British Columbia and the North-West Territories. The organization of "The North-West Dental Society," with headquarters at Regina, looks like business. It is enough to make the political croakers gnash their teeth. At any rate, if they damage them, they will find a growing army of excellent dentists where a few years' ago the population was chiefly pagan Indians. The growth of dentistry means that civilization and population have made headway. Keep it up John Bull, jun.

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No. 3

Original Communications.

Practical Points in Operative Dentistry.

BY C. N. JOHNSON, L.D.S., D.D.S., Chicago, Ill.

MR. PRESIDENT AND GENTLEMEN OF THE ONTARIO DENTAL SOCIETY,—In preparing a paper on Practical Points in Operative Dentistry for your Society, the writer first of all looked over your programme so that he might avoid touching on any subject treated by other essayists. But the scope given the present paper by its title leads us naturally to the consideration of so many little points in practice that it will be small wonder if we at times approach the discussion of matters already introduced in the meeting. This, however, is not always an evil. Diversity of opinion on any subject is often a good spice to season a meeting and make it interesting.

The purpose of the paper is not so much to present new methods as to advocate the desirable features of methods already known but not perfectly developed by the average operator.

First, let us consider the use of the matrix. Here is an appliance which, on the one hand, has been lauded to the skies, and on the other has, with equal emphasis, been condemned to the bottomless pit. Probably the truth of the matter may be stated something like this: The matrix, properly used in skilful hands, with

careful discrimination as to suitable cases for its use, and good judgment as to selection of appliance, is capable of affording the operator the greatest possible aid in the insertion of fillings in that class of cavities recognized as the most difficult ones we have to treat. With equal truth we must admit that it is an appliance which, in the hands of a careless operator, unwilling or unable to comprehend the true principles governing its use, is capable of leading to the very worst kind of failure.

A careless man will insert a more defective filling with the matrix than without it, while the man who manipulates it properly will do better work with it than without, or at least, will do the work fully as well, and with a great saving of time and labor. The matrix, if properly applied, instantly converts a complex cavity into a simple one. It provides us with a fourth wall, where otherwise we would have only three. It gives us a guide and support against which to build the filling, where without it we would have nothing but an open space with no outline to govern us. It leaves the filling in such a condition of surface and contour that little labor is required in finishing. It gives us a pocket at the conical margin into which the filling may be started without the necessity for drilling anchorage pits or grooves. The tooth at this point is usually extremely sensitive. It often occasions more pain to the patient to drill these pits than to otherwise complete the whole preparation of the cavity ; and any appliance which will tend to lessen the sufferings of our patrons has at least one great point for its recommendation.

In fact, the matrix has proved such a source of comfort to the writer that he would as soon think of discarding any one of the old stand-bys of the operating case, as to attempt to practise without this much-abused appliance.

But we must not forget the dangers connected with its use. The objections urged against it have much force of logic, unless we are keenly alive to its limitations. One of the principal arguments of its opponents is that when the matrix is brought against the margin of the cavity, an acute angle is formed at the junction of tooth and matrix, into which it is difficult, or almost impossible, to wedge the gold. This often leads to poor adaptation of gold to the margins, which in turn results in failure of the filling at that point. The answer to this argument is, that no matrix should

be used which is made of a thick, stiff, unyielding material. The material should be of such a nature that it will yield to the pressure of the plugger, and admit of being forced slightly away from the margin at any given point. Then the matrix should not be applied tight to the tooth. It should be sufficiently loose so that in connection with its pliability the operator will have no difficulty in carrying the gold well between the matrix and tooth, thus effectively overlapping the margins. For this purpose wedge-shaped pluggers should be used, with the outline of the point made slightly convex to conform with the curve of the cavity borders. The gold should be carried well up the sides of the cavity in advance of the centre, so that direct pressure *against* the margins may be had. By observing these precautions there will be little danger of defective margins.

Another argument often urged against the matrix is that it obstructs the view of the cavity. This holds good when the broad band matrix is used on a mesial cavity in a molar or bicuspid. This should never be done, as the matrix in that case certainly does hide the cavity. But when the matrix—no matter how broad—is placed on a distal cavity it not only does not obstruct the view, but in many cases brightens up the cavity by reflected light.

In a mesial cavity a matrix seldom is needed, except just at the cervical margin to form a pocket for starting the filling. The writer has used for this purpose broken pieces of watch-spring, which are about the required curve to fit the tooth at the neck. These are narrow and do not hide the cavity, and are held in position with a loosely adjusted wedge.

As to the kind of matrix most universally applicable, the writer has found the Brophy band matrix to work the most satisfactorily in his hands. It is quickly applied, is so thin that it can readily be passed between the teeth, and sufficiently springy to admit of being forced away from the margin of the cavity, as occasion demands.

The writer has sufficient faith in the matrix and in the dental profession, to believe that when the latter fully understands the former, there will be a corresponding alleviation of the weariness and annoyance experienced by the average operator in filling these large distal cavities in molars and bicuspid.

(Exhibit Brophy and Dunn matrices.)

Now a few words about the *hot air* in operating. Every dentist recognizes, or should recognize, the advantage of hot air in drying pulp canals previous to filling. If we get perfect dryness in a pulp canal we destroy the possibility of decomposition, and thus limit the tendency to the formation of gases or other irritants likely to cause trouble in the future. This is so well established that it is a matter of much wonder to find many dentists still filling pulp canals without due precaution in this particular.

Another instance where the writer has found it advantageous to use hot air is in opening into pulpless teeth not having a fistulous outlet. You all realize the danger of setting up inflammation in a tooth of this kind, and you are all equally aware of the tendency to trouble and sometimes to abscess subsequent to the first treatment. This is specially annoying from the fact that usually the tooth has given no pain prior to the operation, and the patient naturally lays the blame to the operator. The writer has lately almost come to the conclusion that the patient is right. In the last two or three years, in a practice where he is constantly treating teeth of this nature, he cannot remember one case where trouble has followed the opening of a pulpless tooth. The method of treatment is as follows: Flood the cavity and chamber well with an antiseptic; absorb this, carrying with it as much debris as possible. Repeat the process several times, and in short, work out all the debris as perfectly as may be without forcing anything through the apical foramen. Always keep the antiseptic in advance of the broach. After using the medicament in this way till the canals are cleaned, flow alcohol into the cavity and canals and absorb with cotton. Then use hot air on the canals for some time, after which flood again with an antiseptic, and seal the cavity, leaving a little cotton in the chamber but none in the canals. If this is done with care, the results will usually be a satisfaction to the operator and a comfort to the patient. In fact, the writer cannot remember a single case of pericementitis following a treatment of this kind since he used the hot air.

Again, where arsenic has been applied to a pulp and allowed to remain a few days, it is often found that the pulp will respond quite actively to pressure, so that it cannot readily be removed. Usually a pulp in this condition will not respond to heat, and after using hot air on it for some time it will lose its sensitiveness to pressure,

and may be removed with little trouble. The drying also shrinks the pulp, and this facilitates its removal.

Speaking of sealing the cavity, brings to mind the fact that many operators are notoriously careless in this respect. In using arsenic for destruction of the pulp, or in the treatment of pulp canals prior to filling, it is a matter of much moment that the cavity should be perfectly sealed.

Where arsenic is used it is evident to every operator, that if any be allowed to escape from the cavity serious trouble will ensue; and the other fact is no less true—though not so universally recognized—that where a pulp canal is being treated, and not properly sealed against the ingress of deleterious agents between treatments, the action of our medicaments is greatly repressed if not at times entirely overcome.

The common method of sealing the cavity is by the use of sandarac varnish on cotton. To the mind of the writer there are two objections to this. First, it is doubtful if by this means the cavity is always well sealed, and second, it is a most unpleasant material to use in the mouth. When a large cavity has been sealed with sandarac and cotton for a few days, the odor on removing is exceedingly offensive. These facts have led to the almost entire abandonment by the writer, and he now uses the preparation known as Gilbert's Temporary Stopping. It is a preparation of gutta percha, with probably a large proportion of lime incorporated in it, and is the most effective and convenient sealing material on the market. It requires but little heat to soften it to the consistency of putty, and may be inserted as readily and quickly as cotton and sandarac. It is not so dense or tough as to give any trouble on removal at a subsequent sitting, and altogether is the most satisfactory material ever presented for this purpose.

Tin and gold in combination as a filling material. Much has been said and written on this subject, but it is the opinion of the essayist that the material is not used in the profession to the extent that its merits should demand. Under certain conditions it is the most desirable filling material that can be used, and the reason it is not employed more is probably due to the fact that its manipulation is not well understood by the average operator. Tin and gold should never be malleted. It should be inserted entirely by hand pressure, and even then it must not be manipulated too

much. Malleting will invariably result in chopping up the material, and over-manipulation will also make it crumble. Deeply serrated points driven with slow, but vigorous, hand pressure, will produce the best results.

Now as to the cases suitable for its use. It may be used with good effect along the cervical margin of deep approximal cavities in molars and bicuspid, when gold is to form the bulk of the filling. Its advantages here are ease of adaptation, rapidity of insertion, and its tendency to prevent shock from thermal changes. It is softer than gold alone, and may more readily be adapted to the walls and margins; it can be inserted in less than half the time that gold can, and it is a poorer conductor of heat than gold, so that cavities filled with it at this point are not so liable to respond to heat or cold after filling.

Another place where tin and gold is indicated is in the teeth of children, where we otherwise would use amalgam. In the small crown cavities of molars and bicuspid, up to the fourteenth or fifteenth year, it is the best material to use. It is preferable to amalgam, because it does not change form. It is preferable to gold, simply for the reason that in many of these cases gold is out of the question, and even if gold is inserted, it will likely have to be renewed in a few years. Tin and gold is not so much affected by moisture during manipulation as gold is, and in these small cavities can be inserted as rapidly and readily as amalgam, if its manipulation is well understood. This may seem a strong statement, but it can be demonstrated.

In case the filling wears down and requires renewing in a few years, gold can then be used and the cavity will be found in better condition than if amalgam had been employed as the first filling.

The objections to tin and gold are its tendency to turn dark, and its lack of hardness to withstand mastication on large surfaces. In small cavities the essayist has had no trouble with the filling wearing away, and in the cases mentioned has found so much satisfaction from its use that he trusts the members of your Society who have not used this material will at once make its acquaintance.

The method of preparing is to place a piece of tin foil on an equal amount of gold foil, and twisting the two into a rope. A piece large enough to fill the cavity should be used, and the whole rope worked into the cavity, much after the manner in which non-cohesive gold was used by the dentists of a generation ago.

The next subject for consideration is that of *Crystalloid Gold*. The essayist is desirous of bringing this material prominently before the profession of Ontario, as it has proved a source of the greatest comfort to him in his practice. It is his belief that by its use in the cases indicated a large number of cavities now filled with amalgam may almost as readily be filled with gold to the advantage of the patient and the satisfaction of the operator.

In treating on this subject, the writer feels he cannot do better than read a short article of his published several months since in the *Dental Review*. It substantially contains his present views, and probably has not been read by any of your members.

Various forms of so-called plastic or sponge gold have from time to time been offered to the profession, but none of them has come into general use. A partial reason for this is the peculiar nature of the material, which calls for peculiar methods of manipulation not easily grasped by the ordinary operator. But probably the greatest drawback to its use by those who have studied it most, is its tendency to become granular on the slightest mismanagement.

An equal rapidity in manipulation would entail a greater waste of plastic gold than of foil or pellets. In short, plastic gold has not tenacity of fibre enough to make it work conveniently as a filling material.

But it has two desirable qualities which should not be lost sight of. It is more readily adapted to the walls of cavities, owing to the ease with which its particles—not being fibrous—will slide over each other and spread under pressure. Then again, the same characteristic conduces to an even surface on the filling, which is not always so readily obtained with the ordinary foil. It is doubtful if fillings made from plastic gold have the strength—would stand an equal strain if built into contours—that have those from a more fibrous material, but the report of operators who have had long experience with it, seem to favor the conclusion that a better surface will be retained after years of wear than with any other form of gold.

To overcome the disadvantage of plastic gold and at the same time retain its desirable qualities, Mr. R. S. Williams, of New York, hit upon the idea of enclosing between two sheets of foil, a layer of plastic gold. The foil is exceedingly thin, so it does not materially

interfere with the plasticity of the material under the plugger, and yet it imparts to the mass a sufficient degree of toughness to make it work kindly.

It comes in four numbers. Nos. 1 and 2 are recommended for starting fillings; No. 3 for general and contour work, and No. 4 for use in connection with amalgam, where the latter has been placed along the cervical margin of deep cavities.

The writer has had no experience with No. 4, and very little with No. 3; but for starting fillings Nos. 1 and 2 come nearer being the ideal filling material than anything that has ever been offered the profession.

If it is not used in every office where gold fillings are inserted, it is because its good qualities are not recognized, or its proper manipulation not understood. From reports concerning its use it is feared that few operators handle this gold properly. It should never be used in flat pieces cut from the pads as we get them from the manufacturer. The layers of foil on the outside are so thin that used in this form they are liable to be punctured or torn, when immediately we have the same difficulty as with ordinary plastic gold—a crumbling of the material which makes it very unsatisfactory. One or two experiences of this kind are enough to discourage the operator, and it has too often been thrown aside without realizing that the fault was in the manner of working instead of in the material.

To properly start a filling with crystalloid gold one should note the kind of cavity to be filled and prepare the gold accordingly. If a small, round, "well shaped" cavity—often the most difficult in which to secure a firm foundation—a strip should be cut from the gold somewhat wider than the depth of the cavity. This should then be rolled quite tight until the pellet is so large that—standing on its end—it will fit snugly into the cavity. A plugger with point nearly as broad as the area of the cavity, and having shallow serrations, should then be used and the whole mass driven into place with hand pressure. If used in this way the gold will in every instance stay firmly impacted in the bottom of the cavity, and will not roll or tilt when other gold is added to it. An ordinary crown cavity in a molar or bicuspid—especially the upper—is more than half filled by this one pellet, and with the assurance that adaptation is good if the force is properly applied.

Tests made out of the mouth show that crystalloid gold under pressure will conform to surfaces which are very uneven, and the firmness with which it is anchored in the bottom of an ordinary cavity proves that it must fit the walls accurately.

If the cavity is a proximal one in a molar or bicuspid, the strip should be cut sufficiently wide to reach across the floor of the cavity from buccal to lingual wall. It should then be rolled large enough so that when laid lengthways in position it will cover well the cervical margin, and admit of being wedged firmly into place with broad pointed pluggers. Pressure should first be directed on one end of the pellet toward the cervico-buccal, or cervico-lingual corner, and then—though this is not always necessary—that end may be held firm with an instrument in the left hand, while the other is driven into place in the opposite corner.

There is not the same tendency for this gold to curl up after being condensed as with other forms, and if enough material is used to cover well the bottom of the cavity, and a broad plugger which will carry the mass before it instead of puncturing it, the feat of starting a filling in almost any cavity is rendered extremely simple.

This certainly cannot be said of ordinary gold, for although non-cohesive gold has been advocated for this purpose as being all that was desired, the fact is that we have found a large discrepancy between the theory and the practice. Non-cohesive gold will not in all cases stay where it is placed, and while much preferable to cohesive in this respect, it cannot be compared with crystalloid.

The main point, then, in starting a filling with crystalloid is to roll it carefully into pellets of proper size, which lessens the tendency to crumble. When rolled in this way it makes a tough, putty-like mass, which when manipulated with broad pluggers will prove a great comfort to those who have had difficulty in making the first portion of a filling firm.

The convenience of having pellets on hand has led the writer to roll up a variety of sizes during spare moments, thus saving time at the chair.

Of course, the gold should never be annealed for starting the filling, but if No. 3 be used for completing the operation it requires annealing to a red heat.

As has been intimated, the writer's experience with the latter has been too limited to express an opinion. His preference yet is for the ordinary foil or pellets in the bulk of the filling, but for finishing, the No. 3 crystalloid laid flat instead of rolled into pellets, and firmly malleted, makes a much more even surface than ordinary foil; and if time proves it to wear well, it certainly will be preferable for this purpose.

To those who have not used crystalloid, the advice is to give it a careful trial, and the hope is expressed that it will prove as great a satisfaction to others as it has to the writer.

And now a few words about *filling teeth with gold*. Here, again, the essayist will crave your indulgence to read an editorial written by him on this subject, and published in the same journal.

This is one of the oldest subjects to be found in our periodical literature, and yet one with probably greater possibilities than any other which the profession has ever written upon. Filling teeth with gold has something of interest in it for the operator, for much of his success in practice depends on his ability to properly perform this operation.

The difficulties encountered by many in the manipulation of gold result largely from a failure to study the peculiarities of the material. Lack of comprehension regarding its capabilities and limitations lead many an operator into serious error, even when he may be an expert in the use of instruments. The one great point to be borne in mind in filling with gold is, that the ordinary forms of foil, or pellets, as we receive them from the depots, will condense only in the direction toward which the force of the plugger is applied. The so-called spreading of gold is a myth, so far as most of the gold we use is concerned. A good fibrous gold will not spread under the instrument, to any appreciable extent, and any gold which is granular enough to do this is unreliable when the wear and tear of mastication is brought to bear upon it. Gold of this nature may be used in the bottom of cavities to start fillings, but should never be built out to a point where there is any strain placed upon it.

The main requirement, then, for perfect adaptation is to direct the pressure *against* the walls of the cavity. This cannot always be done successfully with the mallet blow, especially in cavities difficult of access, and where nothing but a curved instrument

will reach all points. Wherever force is required at an angle diverging much from the shank of the plugger, hand pressure may be used to better advantage than a blow from the mallet. It seems to be a matter of habit with some operators to use the mallet indiscriminately in all regions and at all times. This mallet mania has done much harm, not only in preventing perfect adaptation along difficult walls, but also in chipping delicate margins of enamel. Small pin-head cavities can often be filled as rapidly and to much better advantage with hand pressure, and in all proximal cavities the cervical margin may be covered just as effectively and with greater safety in this way than by mallet force.

When hand pressure is used the best results in adaptation may be obtained by carrying the mass of gold in front of the instrument to the position where it is required, and then directing the force with a tilting or wrist movement, laterally as well as directly—a sort of “insinuating” force which will work the gold into every minute corner. This method is a half-wedging, half-condensing process which, when intelligently carried out, insures good adaptation with little danger to the margins.

Probably the point where the greatest number of gold fillings fail will be found along the wall which stands nearest the operator; as, for instance, the lingual wall in a distal cavity of a left lower molar, the anterior lingual wall of a grinding surface cavity in the same tooth, or the anterior buccal wall of a grinding surface cavity in a right lower molar. These are the walls which look away from the operator—walls which he cannot see without the mirror and against which he cannot impact the gold with direct pressure. It would be a poor operator, indeed, who did not get good adaptation against walls which face him, but with these hidden places in the cavity it is quite another matter. There is only one certain method of gaining perfect adaptation at these points, and that is by the use of right-angle pluggers manipulated with vigorous hand pressure. In that way an operator can “pull” the gold against the wall and by working with the mirror can be sure of his filling as he goes along. A strong plea is here made for the use of right-angle pluggers for this purpose, with the belief that if used conscientiously, there will be fewer failures to record in this class of cavities. The handles of the plugger should be large so as to admit of firm grasping in the hand when in use.

Much as we have just said in favor of hand pressure, we do not wish to discountenance the mallet. Used judiciously it is one of the greatest aids to gold filling, and we have one point to mention whereby it may be employed with more comfort to the patient than is ordinarily the case. From the time the mallet is started on the filling it will prove of great benefit to hold an instrument in the left hand with the point firmly placed on the gold or on some portion of the tooth, to steady it during the operation. If left to itself the tooth at each blow from the mallet will be slightly forced in and out of its socket, and this continued irritation sets up an inflammation which renders the operation extremely painful as it nears completion, where heavy malleting is necessary. If held firm by an instrument much of the soreness is avoided, and the operator is enabled to make a hard surface to his filling without too much protest from the patient.

Another point: When operating on the teeth of the left side—especially the lower ones—it will often bring the work under better command, if the operator will step to the left side of the patient. In this position he can condense against walls which, while he was on the right side, was difficult of access. In fact the dentist should change his position at the chair as often as is practicable, not only for the purpose of better reaching his work, but to give his body needed relief from too long-continued standing in an unnatural attitude. When a cavity on the left side of the mouth proves wearisome, try the experiment of moving to that side of the patient and see if matters do not work better for the change.

In addition to the foregoing, the essayist would like to say a word about the finishing of gold fillings.

In using the sand-paper disks on proximal fillings in molar or bicuspid care should be taken not to dress the filling away too much at the point of contact with the adjoining tooth. Leave it round and full at this point so as to retain the contour. The disk may be pressed in at the neck and made to cut at that point by directing it with a thin instrument held in the left hand.

To prevent the disk from heating smear it with perfumed vaseline. This will lubricate it so it will not be likely to catch in the rubber dam, and will also make it pliable and tough. Oil is sometimes used for this purpose, but is more liable to fly from the disk and soil the clothing. If vaseline is used the filling will not be heated

by friction, and this applies as well to sand-paper strips for anterior teeth as for disks. This is an item which, if followed, will save much pain and annoyance to the patient.

In conclusion, your essayist wishes to disclaim any attempt to treat in detail the points considered in the paper. The nature of the subject would necessarily preclude such a course, and it has been his main purpose to present as briefly as possible some of the many points pertaining to operative dentistry which have proved of peculiar interest to him in his practice.

His greatest hope is that you may enter freely into a discussion of the subject, to the end that new views may be brought out, and that the occasion may result in benefit to every member of your Society.

How to Treat Close Bites.

BY R. E. SPARKS, L.D.S., Kingston, Ont.

We often meet with cases where we are called upon to replace teeth which have been long out, and where the lower teeth have become elongated by a lack of antagonism, and bite very close to the upper gum. This is particularly noticeable in the case of incisors, where one or more may have been lost. Suppose a case. A rubber plate is desired, and the question under consideration is, how can we attach teeth to the plate sufficiently firm to stand ordinary use and allow the bicuspid and molars to antagonize? My plan is as follows: I select a flat back tooth, if possible; if not, ordinary rubber teeth, and grind off the shoulder, making them flat-backed. I then back them with gold plate, or, if for any reason I do not care to grind off the shoulder, with platina, burnishing it to the uneven surface of the back. I then cut a clinger long enough to reach from the tooth which I wish to attach, back into the plate far enough beyond the articulation for a good attachment. A few holes are punched throughout the length of the clinger, except at that point opposite the articulation, where the greatest stress is brought to bear, and where the least thickness of material can be used. The clinger is then bent to approximately follow the shape of the gum and palate, and attached to the tooth by means of a little wax, keeping it up slightly from the cast that

a little rubber may press under it. I then remove it and invest in a little plaster and asbestos, and flow solder sufficient to make a strong attachment between tooth and clinger. After pickling for a short time in dilute sulphuric acid to remove borax and discoloration from soldering, the backing may be filed, or ground and polished. It may then be replaced upon the cast and treated as any other tooth. When packing, it is well to draw out a little rubber thin, and slip it under the clinger to ensure a good attachment. Under favorable circumstances, the clinger and backing may be cut in one strip, bending up one end for a backing. But it frequently happens that the clinger will require to stand at a lateral angle from the backing, in which case it is necessary to make each separately. Besides, these can often be made from scraps of gold plate, none of which might be long enough for backing and clinger complete.

This plan of treatment is very little extra trouble and expense, and when its advantages are explained to the patient, will usually ensure an extra remuneration. It would save our reputation, and save us much annoyance from repeated re-attachment of such teeth.

PATTERNS FOR BACKING TEETH.

To save time and annoyance in backing teeth, punch a hole in a piece of stiff paper, sand-paper or light cardboard (I use sand-paper because it is always handy), slip it over the end of one of the pins and press it gently down upon the other pin. This gives you an impression exactly where the other hole should be made. After punching the second hole, place the paper upon the tooth and with shears or scissors trim it down to the size required. Place the tooth in position (of course, the tooth should be ground to fit before backing), and cut the pattern to fit the surface to which it is to be soldered. Then remove the pattern, lay it upon the plate calculated for backings, and mark the edges and holes. The backing can then be cut to the size and shape required, and holes punched with a certainty of being far enough up, low enough down, close enough together, far enough apart, etc., which is so uncertain without a pattern.

Celluloid Again.

By E. L. FULLER, D.D.S., Amherst, Nova Scotia.

Having noticed in your journal, Vol. I., No. 4, an article headed "Celluloid in Mechanical Dentistry," the perusal of which brings very forcibly to my mind the old adage, "We should speak well of the bridge which carries us safely over!"

If you will kindly allow me a short space in your columns I would like to say a few words in defence of a material which I have used in connection with other materials, such as vulcanite, gold, etc. (as I do not confine myself to any one material as a base for artificial dentures, but consider them all good in their place), for the past ten years, and have found it to be perfectly satisfactory not only to myself but to my patients, and I have many who have used vulcanite and celluloid, and prefer the latter; and I have yet to be convinced (and by sounder argument than the writer has laid down in his article, and I think I can show the unsoundness of the same later on), that it is not all that is claimed for it.

The writer commences his article by "claiming that it is the cheapest material used;" he also refers to its cheapness again by comparing it with the "cost of vulcanite." I would ask the writer if the amount of vulcanite used in packing a full upper denture costs more than a celluloid blank? how much more expense there is in vulcanizing a case than in pressing a celluloid? Is there any difference in the amount of plaster, wax, etc., used? If there is any difference in cost of material otherwise than the difference in cost of plain and gum teeth, it is so small that I do not think any of us, the writer included, would care to figure our expenditure down as fine, or that our patients would give it a moment's thought.

As to the difference in using plain or gum teeth, as far as the welfare of our patients are concerned, the matter of cost should not be taken into consideration.

The writer next states, "that if not properly made it contracts after being moulded." I do not quite catch his meaning; does he mean that if the blanks are not properly made before being placed upon the market, or that if they are not properly manipulated by us? But as he refers to the manipulation further on, I will take it for granted at this point that he means they are not properly manu-

factured. The writer certainly will not claim that they are all improperly made, therefore, why condemn the material as a whole because we may receive one or two poor blanks? We often have placed upon the market poor amalgams, and the consequences are poor fillings even with proper manipulation. Is this any reason why we should condemn amalgam as a filling material? or celluloid as a base for artificial dentures? I say decidedly, no.

He next says "it will absorb the secretions." If properly manipulated (and we, as professional men having the welfare of our patients at heart, will not place in their mouths work that has not been properly manipulated) I claim it will not, which I will explain (and to save time and space) by referring the writer to the directions for the proper and successful manipulation of celluloid in the pamphlet sent out with the New Mode Heater (Campbell's). I will simply call attention here to the fact that, in order to prevent the absorption of secretions, the surface of the plate must not be disturbed after removing from the flask.

He next continues his condemnation under two headings, viz., "Advantages and Disadvantages of Celluloid." I fully agree with him as to the advantages named, but there are a few which he has neglected to mention, and which are of no less importance.

They are first and, I think, the more important, the color which, when compared with the natural gum, is not excelled by any of our manufacturers of porcelain gum teeth, or pink vulcanite. He refers to the color as being "preferable to vulcanite," but claims under the head of "disadvantages" that it is a "very poor imitation of the beautiful porcelain gums." I do not think it was the intention of the manufacturer to imitate the porcelain gums, but to give us a material which would be more natural, and in connection with which we could use plain teeth, thereby enabling us to make a more natural-looking denture than could be done with gum teeth. Second. Its strength when compared to vulcanite. Has the writer ever had a celluloid plate returned to him broken in halves or cracked? I doubt it. Under the head of "disadvantages," the writer says, "that without careful manipulation misfits are frequent." I take it for granted that he speaks from practical experience, and if such is the case then he admits that if carefully and properly made we would have no misfits. Surely he will not admit that he does not carefully manipulate all his work, but, that his argument condemns

the operator, or his carelessness of manipulation, and not the material, is plain to be seen. He next says, it is "often porous." I will not contradict him on this point, other than to say, that in my experience with it I have never seen a porous celluloid plate, but perhaps he has; I should like to ask, however, what caused it to be porous? He says, it is not only "easily warped when being made, but by extreme heat, sometimes tea or coffee." If allowed to get stone cold before being removed from the flask it cannot warp, and if not allowed to do so it has not been properly manipulated (again the fault of manipulation and not material). In regard to extreme heat, it takes water at 212° F. to spring a blank so that it will remain sprung. Has the writer any patients who take their tea or coffee at that temperature?

He says, "the teeth do not hold as well as vulcanite to the pins." I do not see that his comparison has anything to do with celluloid, as he has simply compared the strength of teeth, and not celluloid, with that of vulcanite in their hold to the pins; but that celluloid will hold as well to the pins as vulcanite, I know from experience. He next says, "it is no use for gum teeth." I suppose he means to be used in connection with gum teeth. I have used it in connection with gum teeth with very good results, although I prefer the plain teeth, and think they should be used with it.

He states, under the head of advantages, that the camphor taste disappears if the plate is properly manipulated, in which I fully agree with him. He then says, the camphor taste is so objectionable that you must immerse in alcohol at 95° over proof for four days before inserting, in which case, according to the writer's previous statement, the plate could not have been properly prepared (again the fault of the manipulation and not the material). I have never found a patient yet who claimed the camphor taste remained in the mouth over forty-eight hours. He claims that there is "fraud" practised upon the public by men whose "only idea in the profession is to make money." I agree with him, that there are such men, but that they should be classed as members of the profession? No.

He also says, "that very high fees are charged for what is very inferior work." I also agree with him in that, but summing up the writer's article, I find in nearly all his arguments against celluloid, the fault is entirely with the manipulation and not the

material, therefore the work is inferior, but not the celluloid. I do not claim that it is the best material for artificial base, but that it has its place in our laboratory, and when used in its proper place is far from deserving the condemnation the writer has given it; and I am not surprised, after his arguments, that he should be ashamed to say that it was the best material, but am surprised that he should so openly condemn a material in the manipulation of which he is at fault; and because he has not been successful is no reason why he should condemn it when, no doubt, some others like myself, who understand its manipulation, have been successful.

[In order not to extend a controversy which we consider useless, we append to Dr. Fuller's article, two of many such authoritative replies received by Dr. Globensky, with which the latter is content to leave the matter.

ED. D. D. J.]

CHICAGO, January 14th, 1890.

S. E. GLOBENSKY, L.D.S., Montreal.

DEAR SIR,—In reply to your's of the 10th inst., in regard to celluloid. It is something very unusual to find a dentist who still makes use of it for a base. It is so much the inferior of vulcanite, except in the one point of color, that I do not endorse it at all.

Respectfully yours,

G. A. THOMAS.

CHICAGO, June 23rd, 1890.

DEAR DOCTOR,—In reply to the query about celluloid, will say that I used it almost exclusively instead of rubber for five years, and becoming thoroughly disgusted with it, abandoned it entirely; and now feel quite ashamed when a patient comes in wearing one of the cases which I formerly made. I consider it the worst material ever used in the mouth.

Yours truly,

L. P. HASKELL,

I know of no one who uses it here.

Adhesion vs. Atmospheric Pressure.

BY E. A. TESKEY, L.D.S., St. Thomas, Ont.

Having had considerable inquiry for information regarding the adhesion theory, which I, in common with many others, believe offers the best explanation of the retaining force of artificial dentures, and having received an invitation to contribute to the DENTAL JOURNAL, I venture to offer this short explanation, setting forth some of the arguments why it is preferable to the old theory of atmospheric pressure. Adhesion is an attraction which all bodies possess for one another when brought in contact, and accounts for friction, the wetting of a body after immersion in water, the suspension of a drop of water from the end of the finger in opposition to gravity, and the rise of water in small tubes above the level of the surface, known as capillary attraction. A familiar experiment will explain the action of this force more clearly. Place together two pieces of glass with a drop of water between them to occupy the inaccuracies of the surfaces; it requires considerable force to separate them, and you have a very clear demonstration of the attraction of adhesion. The amount of force necessary to separate them depends principally on three conditions: First, intimacy of contact; second, the area of the surface of contact; third, the direction of the opposing force, a much greater strain being required when at right angles to the plane of contact. Let us now apply these facts, and see how they coincide with our every day experiences. First, the amount of force necessary to retain an artificial denture depends upon the intimacy of contact; this no one will deny, for it sometimes requires our greatest efforts to secure a fit, therefore, it must be admitted that the laws in each case are wonderfully alike, if not the same. Second, the retaining force of an artificial denture depends largely upon the area of contact. This is corroborated by the experience of all dentists who make artificial teeth. Third, the force retaining an artificial denture is influenced largely by the direction of the antagonistic forces, which, in this case are mainly gravity, and the tension of the muscles of the mouth. What practical man will not tell you that the greater the area of the horizontal surfaces (other things

being equal) the more retaining force is exhibited, consequently to what other conclusion can we arrive than that it is the same law in each case that produces the same results? Now, then, to treat the matter fairly and without prejudice, that we may arrive more readily at the truth, let us study the "atmospheric pressure theory," and learn how the two compare. It asserts that by means of an air space in the central part of the denture, from which the air is withdrawn by suction, and the pressure of the atmosphere upon the surface of the plate, is the retaining force demanded, and implies that this chamber must be air-tight, secured by the contact of the plate with the tissues that surround this space. Now, that we have somewhat of each theory in our minds, we are prepared to face difficulties with explanations from each, and to draw conclusions. Why do artificial dentures exhibit greater retaining force on soft than on hard palates? The adhesion theory answers, that on soft palates a greater intimacy of contact is secured on account of the yielding nature of the tissues, which, in a measure, compensates for the inaccuracies of the rigid plate. The air-pressure theory asserts that you cannot maintain as complete a vacuum on a hard palate as on a soft one, because the tissues do not assist in excluding the air to the same extent.

With both answers before us, we must conclude that the air-pressure theory fails from the fact that if any air be permitted to re-enter the chamber, sufficient could enter to establish an equilibrium, and atmospheric pressure ceases as a consequence. If this explanation be not correct, why is not the retaining force as great in each case? Why does a plate exhibit retaining force when there is no air chamber? Adhesion theory answers, because the maximum surface of plate has an intimate contact with the palate. The other theory has no answer; neither can it give a satisfactory explanation why it is that the retaining force does not cease when the tissues enlarge and fill the vacuum. Why is it that high V-shaped arches exhibit but little retaining force? The answer of the adhesion theory is that the opposing force, which is principally gravity, is exerted at right angles to a very limited surface on the ridge of the mouth, and the mucus furnishes a lubricant, lessening the friction in the sliding motion, which is the result of lateral tension. The atmospheric theory furnishes no answer to this difficulty, and until it does we are

warranted in assuming that the adhesion theory furnishes the only explanation for the retaining force referred to.

With these facts before us, we can come to no other conclusion than that we have been misled by assuming that atmospheric pressure offered an explanation of the retaining of artificial plates, and I think I am safe in asserting that, under the conditions imposed, it is impossible to create a vacuum by withdrawing the air, or any portion of it, from the ordinary air chamber, and that this chamber, instead of being a benefit, is actually a detriment, by lessening the surface of contact. I think the foregoing is sufficient to prove that all that is necessary to secure retaining force is perfect adaptation, and in future let us know this force as adhesion, instead of the vulgar name of suction.

Replantation.

By J. W. SANGSTER, Sackville, N.B.

As the subject of replantation of the natural teeth has been considerably discussed in dental journals of late, I thought I would like to try it, which I did with the following treatment and results, which I copy from my note-book :

" February 15, 1889.—Patient a healthy young man, aged 18. Tooth first inferior bicuspid, decayed on crown, pulp dead, suffering from acute alveolar abscess. Removed tooth carefully, syringed socket well with first tepid water, then phenol sodique. Removed from tooth all abnormal growth, shortened root about one line, cleansed and filled pulp canal with cement, crown with amalgam, washed in tepid water and laid it down while I proceeded to syringe socket with a solution of bichloride of mercury, 1 to 500, then syringed with phenol sodique, dipped tooth in a 20 per cent. solution of carbolic acid and placed it in socket, forcing it down with some pain.

" The next day found gum and face swollen, and tooth very sore to the touch. Painted gum with tincture iodine and aconite.

" 17th. Swelling still on. Painted face outside with tincture iodine.

" 19th. Improving fast ; swelling in face nearly all gone.

" 21st. Improving. Patient eating and sleeping with comfort.

" 22nd. Still improving.

"25th. Inflammation all gone, except a little around socket. Tooth fairly firm ; patient says he can masticate with it very well."

During the process of healing there seemed to be no suppuration whatever, which I attributed to the antiseptic treatment the tooth and socket received previous to replanting. From that time to the present the tooth has been thoroughly comfortable, and as useful an organ as he has in the mouth—indeed, he says he has no reason to know any difference. I don't think it quite as firm as before the replanting. While others might, by treating and filling pulp canal, save a lower tooth with abscess formed on root, I have met enough ignominious failures to have prevented me to try this, and believe the method adopted the only one by which I could have saved this tooth. The one immediately behind this one had been lost on account of alveolar abscess.

Last summer, while taking an outing at the sea-shore, I one day happened to look at the teeth of a gentleman, and noticing that the left lower lateral was in the place of the cuspid, and the cuspid in the place of the lateral, I remarked that nature had made a mistake in placing his teeth. He said it was his mother who had made the mistake, that when he was about twelve years old (he is now thirty) he had these two teeth knocked out by a kick from a horse ; his mother picked up the teeth and replaced them in the position they now occupy. They are sound, strong and firm, with no distinguishable change of color from the others that had not been disturbed.

Proceedings of Dental Societies.

Eastern Ontario Dental Association.

The eleventh annual meeting of the Eastern Ontario Dental Association was held at "The Russell," in Ottawa, on the 19th and 20th of June, 1890.

The following officers and members were present : Messrs. J. A. Liddell, of Cornwall, President ; J. C. Bower, of Ottawa, Vice-President ; J. Robertson, of Ottawa, Secretary-Treasurer ; John H. Parnell, R. E. Sparks, A. A. Smith, Geo. E. Hanna, C. A. Martin, A. Fisseault, Geo. H. Weagant, A. H. Weagant, Geo. Hutchison, C. B. Mansell, S. S. Davidson, L. Clements, W. Brace, A. Cameron.

President Liddell called the meeting to order at 8.15 p.m., after which the minutes of the previous meeting were read by Secretary Robertson, and adopted.

The following Licentiates were admitted members of the Association :

Ira Bower, proposed by J. C. Bower, seconded by J. Parnell.

D. Callendar, proposed by S. S. Davidson, seconded by A. H. Weagant.

A. F. Pearson, proposed by John Robertson, seconded by Geo. Hutchison.

W. G. McElhinney, proposed by J. Robertson, seconded by S. S. Davidson.

J. A. Armstrin, proposed by S. S. Davidson, seconded by J. C. Bower.

A. A. S. Burns, proposed by W. Brace, seconded by A. Fisseault.

A letter was read from G. J. Clint, of Almonte, regretting his inability to be present, and enclosing his membership fee.

Communications were also read from Dr. Beers, of Montreal, and Dr. Willmott, of Toronto, also regretting their inability to attend.

Dr. G. E. Hanna then gave a verbal report relative to the Ontario Dental Legislative Act, after which the Treasurer's report was received and adopted on motion of G. E. Hanna, seconded by W. Brace.

OFFICERS APPOINTED FOR ENSUING YEAR.

Dr. J. A. Parnell, of Ottawa, was nominated for President by Dr. Geo. Hutchison, seconded by Dr. Ira Bower. There being no opposition, Dr. Parnell was unanimously elected.

On motion of Dr. Hanna, seconded by Dr. Weagant, Dr. A. A. Smith, of Cornwall, was elected Vice-President, Dr. C. B. Mansell, of Carleton Place, having been proposed, but declined.

Dr. A. S. Burns, of Smith's Falls, was proposed for Secretary-Treasurer, but declined. A. T. Pearson, of Ottawa, was elected on motion of Dr. J. Robertson, seconded by Dr. Geo. Hutchison.

The retiring President, Dr. Liddell, then addressed the Association, expressing his great satisfaction on seeing so many members of the Association present, admonishing members to be workers,

not dreamers ; complimenting the profession on being in affiliation with Toronto University, and rejoicing over the fact that a journal devoted to dental work had been established in the Dominion.

After dealing ably with important topics, such as illegal practising of Dentistry in the Province, etc., Dr. Liddell heartily thanked the members for the honor conferred on him by electing him to the honorable position of President of the Association.

President Parnell, of Ottawa, then assumed the chair.

On motion of Dr. Sparks, seconded by Dr. C. A. Martin, a vote of thanks was tendered the retiring officers, to which all made appropriate replies.

Dr. Callendar, of Toronto, was then requested to address the Association. In doing so, Dr. Callendar forcibly brought home to each member present the conviction that it was his duty to use every legitimate means possible to elevate the standing of the profession.

Dr. C. A. Martin addressed the Association, thanking the members of the profession generally for electing him a member of the Board of Directors for so long a period, and gave a good account of the advancement made by the profession during his stay on the Board. Dr. Martin, however, felt convinced that some change in the running of the College at Toronto was necessary, and asked the members present for their views as to the changes necessary, and how such changes could best be brought about, so that he might present such views to the members of the profession present at the annual meeting, to be held in Toronto on the 14th of July.

After a lengthy discussion as to the changes necessary, Drs. Clements, Hanna, Ira Bower, W. Brace and M. S. McElhinney were appointed a committee to draft resolutions embodying the desired changes.

After due consideration, the Committee brought in the following resolutions, which were afterwards adopted by the Association :

I. Resolved, That it is the opinion of this Association that the Dental Act be so amended that the election of the Board shall take place by ballot, forwarded by mail, on a plan similar to that adopted by the pharmaceutical and medical professions.

II. Also resolved, That a member of the Faculty of Royal College of Dental Surgeons at Toronto shall not be eligible for membership on the Board of Directors.

III. Further resolved, That no medical graduate be appointed examiner unless he be in actual practice as a dentist.

On motion of Dr. Hanna, seconded by Dr. Hutchison, Dr. C. A. Martin was entrusted to lay these resolutions before the meeting to be held in Toronto in July.

The meeting then adjourned, to meet next morning at nine o'clock.

FRIDAY.

At nine o'clock, President Parnell called the meeting to order, all members being present.

Dr. Sparks, of Kingston, read a paper on "Aluminium, and its application to Dentistry." After giving source, preparation, physical properties, etc., the author gave an account of its use as a filling material and as a base. He thinks that the difficulty in its manipulation as a filling material will in time be overcome, and that it will yet be a valuable material for such purposes. He thinks, too, that by "Carroll's Method" the best results can be obtained when used as a base. Dr. Martin thinks those objectionable features it now possesses will soon disappear.

Dr. A. A. Smith read a paper on "Causes of Secondary Decay." The author thinks that improperly prepared cavities, as well as unsuitable filling material, has a great deal to do with secondary decay. He also thinks that galvanic action may lead to secondary decay. He thinks that by shaping walls of the cavity properly, and judiciously selecting appropriate filling material, secondary decay will largely be overcome.

After full discussion of these papers, in which most of the members participated, a hearty vote of thanks was tendered the authors.

Dr. McElhinney then gave an exhaustive account of the electric vibrator, as to its working and results.

Dr. Callendar gave an account of the process of porcelain filling, and its method of manipulation.

Drs. Lovejoy, of Montreal, and McCullough, of Perth, were admitted members of the Association, on motion of Dr. Brace, seconded by Dr. Hanna.

Moved by Dr. Sparks, seconded by Dr. Hanna, that the

sympathy of this Association be tendered to the wife and family of our late and much esteemed member, Dr. Dulmage, and that a copy of resolution be sent the bereaved family. Carried.

The meeting then adjourned to Dr. Bowen and Armstrong's office at 1.30 p.m., where a number of important and interesting clinics were performed, after which the members amused themselves sight-seeing, to meet again at 8 p.m., at the complimentary banquet at the "Russell," given by the resident practitioners to the Association.

On Saturday, most of the members left for their respective homes, to meet next year at Brockville at the call of the President.

(Signed) A. T. PEARSON, D.D.S.,
Sec.-Treas. E. O. D. A.

Ottawa, June 21, 1890.

The Banquet.

THE EASTERN ONTARIO DENTAL ASSOCIATION BANQUET.

The banquet tendered the visitors by the resident practitioners of Ottawa took place on Friday evening, June 20th, at the Russell House. The arrangements were complete in every detail, and a most enjoyable evening was spent by those present.

Dr. Charles Martin occupied the chair, and in his usual genial and witty manner welcomed the visitors to the capital. Several of the Ottawa members, in view of the banquet, having abstained from food for several days previously, the preliminary speech-making was cut short, and the melodious strains of the orchestra, to which a goodly number of inferior maxillaries kept time, with the occasional accompaniment of a soft gurgle or a porcine murmur of satisfaction, was the prevailing condition of things. At length the spell was broken. In words rich in metaphor, and burning with the eloquence of a Demosthenes, the Chairman opened the business of the evening. Toast after toast was drunk and received response. The Queen, the ladies, the press, our brethren, sister professions, and retiring officers—none were slighted—each toast received its due, especially the ladies, for are they not the beacon star of dentistry?

The songs were of rare interest, and given with great excellence of rendition.

The merry lay of Dr. Parnell made our very mouths water, while the blood-curdling details of Dr. Smith's made the very flesh creep, and should one carping critic say that Dr. Davidson's was not quite so good as the others, that critic would be forced to admit that it was "near it." A number of the visitors having to leave early in the evening to catch their train, the company arose and gave them a royal send-off, then turned again to their fleshpots.

A most encouraging feature of the evening was the absence of wine, thus dentistry once more claims a place in the foremost rank of progress, for while occasionally at the banquets of other professions, the members are rescued from beneath the groaning board, from a dental banquet each goes home with naught but indigestion. Thus the short record of a most enjoyable evening spent, when the wild jostlings and selfish jealousies of outer life are forgotten, when each greets his neighbor with the name of brother; may it long remain in memory a step towards that universal brotherhood that shall bind all in unselfish striving for the good of all, and cement our profession and our people in one vast commonwealth of love.

ARTO.

Royal College of Dental Surgeons.

Pursuant to announcement, the tenth biennial meeting of the Royal College of Dental Surgeons of Ontario was held July 15th, in the lecture-room of the Y. M. C. A. building, Toronto. Upon motion, Dr. G. E. Hanna, of Kemptville, was elected Chairman, and Dr. A. H. Hipple, of Stratford, Secretary.

The report of the Board of Directors was read by the Secretary, Dr. Willmott, showing that during the last two years 52 students have passed the final examination of the College and been granted licenses to practise dentistry, and that the degree of D.D.S. has been conferred upon 57 candidates by Toronto University. The raising of the standard for matriculation has been found to greatly reduce the number of matriculants. Since Latin has been made compulsory there have only been 18 matriculations, while during the corresponding period previous to that there were 36. The attendance last session was the largest in the history of the College, 74 students being in attendance; but the raising of the standard is expected to reduce this to about 50 in the course of a year or two.

The Board recommended that in future the examinations be conducted upon the same plan as that pursued by the Medical Council, so as to give the examiners more time for the examination of papers. The Board had also taken into serious consideration the advisability of improving, if possible, the efficiency of the Dental College, but had not been able to reach any definite conclusion. Upon motion, the report was received.

Dr. Rowe, Treasurer of the College, read the financial report, which showed that at the time of the last report there was a balance on hand of \$2,820.27. The total receipts for the two years from examination fees, interest, etc., were \$2,915.29, and the disbursements, \$2,417.08, there being a net gain in two years of \$498.21, and a cash balance on hand of \$3,318.48. The report was received.

An informal discussion then took place in reference to the financial management of the College. Under the present arrangement the Board of Directors control the College and appoint the professors, but at no fixed salary. The Faculty receives the lecture fees and pays all expenses, including the remuneration of the professors. A resolution was introduced by Dr. C. A. Risk, seconded by Dr. A. F. Webster, to have the Board assume entire control of the finances, and pay the professors a fixed salary. The members of the Faculty present expressed a perfect willingness to enter into such an arrangement, and it was stated that a majority of the Board favored the plan also. The discussion showed very plainly that the matter is one which requires careful consideration. The fixing of the amount of salary might not be an easy matter. It was suggested by one, for instance, that the salary paid should bear the same relation to the salaries paid to the professors of leading American colleges, as the number of students in the one does to the other. This Dr. Willmott claimed would be unfair. He thought that the length of time they had been engaged in teaching, and the proficiency and experience they had thus acquired, should rather be taken into account. Then, too, it was found that some who were quite willing to have the Board take the financial management out of the hands of the Faculty, were not willing to allow themselves to be taxed in case the revenue should not be sufficient to pay all the expenses. Others again, while they favored the change, thought that the matter should not be acted upon hastily, and, upon a vote being taken, the motion was lost.

The election of a board of directors for the ensuing term was then proceeded with, the following being elected : Dr. J. B. Willmott, Dr. H. S. Wood, Toronto ; Dr. R. M. Fisher, Wiarton ; Dr. Geo. C. Davis, London ; Dr. C. A. Martin, Ottawa ; Dr. L. Clements, Kingston ; Dr. C. H. Bosanko, Barrie.

Ontario Dental Association.

The first session of the second meeting of the Ontario Dental Association was held the same evening, July 15th. After the reading of minutes, officers were elected for the ensuing year as follows : Dr. N. Pearson, Toronto, President ; Dr. C. V. Snelgrove, Toronto, Vice-President ; Dr. C. H. Bosanko, Barrie, Secretary ; Dr. A. W. Spaulding, Toronto, Treasurer.

Dr. Woolverton moved, seconded by Dr. Spaulding, that the President appoint a committee to draft by-laws and revise the constitution and code of ethics of the Society. The motion was carried, and a committee composed of the mover, seconder, and Dr. Killmer, was appointed.

Dr. Bosanko, of Barrie, having extended to the Association a very kind invitation to hold its next meeting in that town, it was unanimously decided to hold the next meeting in Barrie, commencing on the second Tuesday of July, 1891. The officers of the Society, together with Drs. Willmott, Hipple, Oakley, McLaughlin and Burt, were appointed a committee to make all necessary arrangements for the next meeting of the Society. The retiring President, Dr. Geo. C. Davis, of London, was then called upon to deliver his retiring address, a full report of which will be found elsewhere in this number. After thanking the Doctor for his excellent address, the meeting adjourned.

WEDNESDAY MORNING.—Dr. A. W. Spaulding, of Toronto, read a paper on "Amalgam Fillings." [As this, as well as other papers read, will be published in full in some future number of the JOURNAL, it is not thought necessary to give an abstract of it in this connection. The discussions being self-explanatory appear in this report.—ED. D. D. J.] Dr. J. Frank Adams opened the discussion, taking up at length the various points in the paper. A general discussion on the merits of amalgam followed. Dr. Woolverton

thought that amalgam fillings properly inserted are very useful, but the tendency is to put them in hastily and without giving sufficient attention to details. Dr. Pearson had found that many amalgam fillings break down the walls of a cavity by expansion of the filling. Dr. Killmer explained that an amalgam filling contracts in the direction of its longest diameter, and expands in the direction of its shortest diameter, which might break down the weak walls of a cavity. Dr. Johnson, of Chicago, was inclined to attribute the breaking down of the walls to other causes. He thought they usually gave way because they were left unsupported, or were trimmed down too thin. Dr. Cheesebrough thought it a good plan to start a cavity with soft amalgam, rubbing it well into all the little corners and crevices of the cavity. As the filling progressed he used more dense amalgam, the mercury gradually working to the surface. Dr. Killmer thought that there ought not to be any corners and crevices in a cavity. Dr. Willmott pointed out that if the amalgam works to the surface in one direction it does so in all, and that fillings put in in that way have free mercury at the bottom of the cavity, which gradually evaporates, leaving the fillings porous. The discussion then drifted off into a general expression of opinions respecting copper amalgam; Dr. Woolverton was of the opinion that it should be used sparingly and cautiously. Dr. Hipple reported the case of a patient in whose mouth the use of copper amalgam had on two separate occasions caused severe odontalgia, which was relieved when the filling was removed and an ordinary amalgam filling substituted. Dr. Spaulding had had the same experience, and Dr. Ziegler said that he has a patient in whose mouth he cannot use gold, on account of the severe pain which always follows the insertion of even the smallest gold filling. Dr. Johnson said he had never had any such experience, but in several cases patients that did not know that copper had been used, had come back several days later complaining of a copper taste in the mouth. He looked upon copper amalgam as being preferable to the ordinary amalgam in the case of a nearly exposed pulp, as the former is a poorer conductor of heat. He also considered its non-shrinking qualities of great value. Dr. Willmott said that he had had considerable experience with copper amalgam. When properly manipulated he thought it gave good results, its chief advantage being that it stays where you put it. Unless the amalgam is over-

heated it is not necessary to squeeze out the excess of mercury. If properly handled, Weagent's amalgam can be made to set hard in five minutes without removing any mercury, but the exact amount of heat to be used can be learned only by experience. Dr. A. H. Hipple, of Stratford, read a paper on "Implantation of Teeth." The discussion was opened by Dr. James Stirton, of Guelph. He thought the implantation of artificial teeth quite within the range of possibility. Bullets and other foreign bodies are sometimes tolerated by bone tissue, and become firmly imbedded in the same. This being the case, why should not a porcelain tooth be encapsuled and retained? Dr. Willmott said he regretted that Dr. Hipple had not incorporated in his paper the report of a case of implantation he had performed in the mouth of a little girl eight years of age. He believed it to be the first case of its kind on record. He would ask Dr. Hipple to give the Society a report of the case, and also add it to his paper before handing it in for publication.

Dr. Hipple said, that in the case referred to, the little girl fell from a desk at school and knocked out the right permanent central, which the teacher, unfortunately, ordered to be thrown into the stove. Upon examination he found that the anterior wall of the socket had been almost, if not entirely, broken away, and the gum badly lacerated. He advised implantation, and performed the operation two weeks after the accident. The child being very healthy, the continuity of the gum was by that time fully restored, and the socket filled with bone tissue. The patient was placed under chloroform, and a new socket drilled. The tooth inserted had been extracted about five years before, and had been soaking in a solution of bi-chloride of mercury for about a week. After insertion the tooth was held in place by a thin platinum cap, burnished down over the two centrals, and cemented in position. This came off at the end of three weeks, when it was found that the tooth was firm when pressure was applied in any direction but forwards. The cap was replaced and left for two weeks longer, when it was finally removed. At the end of four months the tooth was firmer than its fellow, and as useful in every way, and what was perhaps more remarkable was that at no time since the operation had the patient complained of the slightest pain.

Dr. Marshall spoke of a tooth implanted in his own mouth by Dr. Willmott, two years ago. The tooth was firm and very useful

until about a year ago when the crown broke off, leaving the root, to which he intends to attach a crown. The breaking he accounted for by the fact that the tooth implanted was a cuspid ground down to the shape of a lateral, which weakened it greatly. The operation he said was painful but not excessively so.

Dr. Willmott thought that teeth intended for implantation should be kept moist from the time of extraction until used. After a tooth has been out of the mouth for some time and become dry it is very brittle, nor will it regain its original strength by being soaked in water. Just a few days before a dried tooth intended for implantation had dropped from his hand to the floor, and shattered into pieces, although the distance was not more than three or four feet.

Dr. Johnson said he was afraid that implantation was being carried to extremes. The result is not always satisfactory. Breaking of the crown is quite a frequent occurrence, and, in many cases, there is extensive absorption of the root. Under certain circumstances implantation is certainly justifiable, but care should be used in making the selection of cases.

WEDNESDAY AFTERNOON.—Dr. R. G. McLaughlin, of Toronto, read a paper on "Root Filling," which evoked a lively discussion. Dr. Cheesebrough thought that zinc chloride was not the best root filling. If the apex of a root can be hermetically sealed by means of a little cotton saturated with oil of cloves, as the essayist claimed, why not fill the whole root with cotton?

Dr. Johnson thought Providence was very kind to some operators. He didn't want the craze for filling roots with cotton to get a hold in Ontario, as it did in Philadelphia a few years ago. His plan for filling roots is to twist a little gutta percha into a cone, in such a way that grooves run from the apex to the base. By lubricating the root canal with eucalyptus oil or chloroform the cone can be easily forced to place, the fluid following the thread on the cone, and escaping at the base. He looked upon a solution of gutta percha in eucalyptus oil or chloroform as the best root filling, and he did not believe that such a filling would absorb fluids.

Dr. Willmott said that a great deal is claimed for root filling which is never realized. He did not think it absolutely necessary to fill roots to the apex, however desirable it might be to do so. To fill the buccal roots of a second molar, for instance, is perfectly

impossible in nearly every case, and yet thousands of such teeth have been successfully treated and filled after the death of the pulp. What is really necessary is to either totally extirpate the pulp, or else render it thoroughly antiseptic, in which case a small portion remaining will do no harm. He favored the use of cotton as a root filling, and if used with skill, he thought the results would be as good as from the use of any other material. Let each use the material from which he gets the best results, and in the manipulation of which he has become expert. He would say, however, that he considered gutta percha, *per se*, the very worst material for root filling, on account of its tendency to absorb fluids and become offensive.

Dr. R. M. Fisher, of Wiar-ton, read a paper on "Anæsthetics," in which he dealt at length with their history, phenomena, and physiology. The discussion which followed was mainly in reference to the use of cocaine as a local anæsthetic.

Dr. Woolverton had used cocaine extensively and with good results. He did not inject it, but applied a strong solution to the gums with a pledget of cotton, using considerable pressure. He had never known any unfavorable results to follow its use in this way. Dr. Rose had also used cocaine with good results, but was careful in selecting his patients.

Dr. Johnson warned the members to be very careful in its use. Its action is uncertain, and not very well understood. He knew of several cases in Chicago where patients had nearly died from its effects. He himself was thoroughly afraid of it. Once when a patient came in and insisted upon having it used he rubbed a little water on her gums in the same way that he might have used a solution of cocaine, and after he had extracted the tooth the delighted patient declared that she never felt the least pain.

Dr. Willmott gave a verbal report of "Two unusual cases of oral surgery," which excited much interest. He has been requested to prepare a paper on the subject for publication in this Journal, and has promised to do so.

WEDNESDAY EVENING.—Dr. Luke Teskey, of Toronto, read a paper on "Hæmorrhage and its results." The discussion was opened by Dr. Martin, who gave a humorous and interesting report of a number of cases of excessive hæmorrhage that had come under

his notice. He looked upon pressure as the most valuable means for arresting hæmorrhage in the mouth.

Dr. Clements spoke of a case in his own practice where the simple application of some heated beeswax for the sake of securing an impression of the parts, had arrested the hæmorrhage after a number of other remedies had failed.

Dr. Willmott rose to correct a false impression that had grown out of a remark, made by him in the afternoon, in reference to some of the instruments used by surgeons. He did not wish to be understood as saying anything derogatory to the ability or professional standing of any physician.

President Pearson, continuing the subject, thought that physicians should not infringe upon the domain of dentists. When a medical man undertakes to pull a tooth he makes a great mistake. Thousands of good teeth are annually extracted by physicians, which might be preserved and made useful for years, if the physician were to send the patient to a dentist instead of attending to the case himself.

Dr. Luke Teskey rose to defend the members of his own profession. He thought that physicians have a much higher regard for dentists than the latter usually give them credit for.

Dr. Willmott thought there was not so much danger of physicians trespassing upon the domain of dentists, as of dentists infringing upon the province of medical men. Dentists could make no greater mistake than in trying to perform surgical operations.

Dr. Martin thought that physicians did altogether too much tooth-pulling. They extract teeth for other people, and send their own family to the dentist. (Laughter.)

Dr. Clements said that he had always found medical men exceedingly kind and liberal. He thought it extremely unwise that anything should be said reflecting on the medical profession. The matter then dropped.

Dr. C. N. Johnson, of Chicago, read a paper on "Practical Points in Operative Dentistry," a full report of which will be found in another column.

Dr. Willmott could not fully endorse the remarks of the essayist in reference to the use of matrices. He thought that only very skilful operators are likely to get good results from them. He quoted the words of an American dentist, who said, that "next to

the man who never used a matrix, the happiest dentist will be the one who quits first." Unless we can make a matrix conform to the concavity at the gum margin of a cavity, we will have imperfect fillings at that most important point.

Dr. Klotz said that for some time he had been using matrices made by himself out of strips of German silver. Each of these he bent over at the middle so as to form a V shaped appliance. This he placed between the teeth and packed soft impression compound into the open space, until the soft metal conformed almost perfectly to the contour of the tooth. When the compound hardened the whole appliance became very rigid. It could be easily removed by holding a heated burnisher against it for a few moments, so as to soften the compound.

Dr. Pearson was glad that Dr. Johnson had spoken so strongly in favor of hand pressure in inserting gold fillings. He believed that gold malleting had destroyed more teeth than it had saved. After some further discussion, the subject was dropped and business resumed.

Upon motion of Drs. Hipple and Woolverton, it was resolved, that at future meetings of the Society a stenographer be employed to report the proceedings, and that the DOMINION DENTAL JOURNAL be the official organ of the Society.

Dr. Willmott moved, seconded by Dr. McLaughlin, that the committee on constitution and by-laws be allowed to report progress and sit again. Carried.

The meeting then adjourned to meet in Barrie, July 14th, 1891.

THURSDAY,—The forenoon of this day was devoted to clinics and clinical lectures, at the Dental College on Louisa street.

Dr. R. E. Sparkes, of Kingston, inserted a gold filling by hand pressure alone. He demonstrated that gold could be perfectly welded without the use of the mallet, and with much less discomfort to the patient.

Dr. C. V. Snelgrove, of Toronto, had arranged to put on a Richmond gold crown, but the patient failed to appear. He demonstrated his method of obtunding sensitive dentine by means of ether spray, very satisfactorily, however. He began by first inserting a small pledget of cotton saturated with ether, and when the pain of the cold had passed away, he followed it up with ether spray from

an ordinary atomizer. In a short time the dentine was insensible to pain, and could be excavated without difficulty.

As no suitable patient was forthcoming, the fourth operation on the list, the implantation of a tooth, by Dr. Willmott, was not performed.

Dr. C. N. Johnson performed several operations. He inserted a large gold filling in the posterior approximal surface of a left bicuspid, starting the filling with crystalloid gold, using pellets for the body of the filling, and using No. 60 foil, well annealed, for the surface. He also filled an anterior cavity in an upper molar in the same way, to demonstrate the rapidity with which such a filling could be inserted. A cavity in the cutting edge of an upper cuspid he filled with a combination of gold and platinum. This he claimed makes a more desirable color than gold alone, harmonizing better with the complexion, particularly in the case of brunettes.

At one o'clock, the members of the Society practising in Toronto tendered a complimentary banquet to the visiting members, at "Harry Webb's." The committee in charge of the affair, and to whom much credit is due for its successful management, was composed of Drs. N. Pearson, F. J. Adams, C. V. Snelgrove, J. W. Oakley, A. W. Spaulding, J. B. Willmott, R. G. McLaughlin, Jesse Mills, A. H. Cheesebrough, H. T. Wood, E. Keefer and J. A. Troutman. Nearly eighty members sat down to the repast, which was a choice one. Dr. H. T. Wood sat at the head of the table, the vice-chairs being filled by Drs. N. Pearson and C. V. Snelgrove.

After the dinner, speeches were indulged in. The chairman, Dr. Wood, in a few neat remarks, welcomed the guests in the name of the city dentists and the Ontario Dental Society.

Dr. J. B. Willmott followed. An exceedingly pleasant duty devolved upon him. It was his duty to introduce to the meeting a representative of the profession from the United States, a young man whom he had first known as a most appreciative student in the Toronto Dental College. (Applause.) He did not believe there had ever been a more attentive or appreciative student in the College since its institution, than their brother practitioner from across the line. Soon after he left the College he had removed to Chicago, where he had broadened with the breadth of that interminable western country, and was now recognized as one of the

brightest young men in the profession. Yet he had always remained loyal to the Toronto Dental College, and had secured the recognition of its graduates by the State Board of Illinois (Applause).

Dr. C. N. Johnson, of Chicago, was then introduced. He was deeply sensible of the kindness that had been shown him since his arrival. He hoped that the profession in Ontario would continue to make special efforts to encourage social and professional intercourse among its members. There was something about the dentists of Chicago which made him admire them above all others. They were the best set of fellows he ever met. As President of the Chicago Dental Society, he extended a cordial invitation to the members of the Ontario Society to visit them in 1893, when they come to the World's Fair. He was proud of the fact that he was a Canadian, and with all due respect to the American institutions, he had no hesitation in saying that the teaching in the Toronto Dental College was more systematic than that of any other college with which he was familiar. (Applause). He had only one fault to find with it, the students were not required to do enough practical work. Instead of having to insert three gold fillings for examination, he would like to see them required to insert at least ninety satisfactorily. He looked upon the present staff of the College as being a most efficient one, and he could see no reason why the graduates should not be the peers of any in the world, as the standard for matriculation was head and shoulders above all others.

Dr. C. V. Snelgrove then introduced Drs. Martin and Clements, of the Eastern Dental Association.

Dr. C. A. Martin, of Ottawa, called attention to the fact that the chairman had welcomed the visitors, and given them the freedom of the city, at the *close* of the Society's meeting. He was wise. He had seen some of them before. (Laughter.) He was glad to see the various sessions of the meeting so well attended, and was particularly pleased that so many had arranged to be present at the banquet. Social gatherings, such as these, break down the little prejudices which dentists are apt to form towards each other. (Applause.)

Dr. Clements in a few well-chosen words thanked the members for the kindly manner in which Dr. Martin and himself had been entertained, as representatives of the Eastern Dental Society.

Hand-shakings and farewells were then exchanged, and the visitors left town by the afternoon trains.

Retiring President's Address—Dr. Davis.

GENTLEMEN OF THE ONTARIO DENTAL SOCIETY,—I welcome you here to-day to our annual meeting, I congratulate you on the success of the Society, and I commend you for the interest you have in it's welfare, as demonstrated by your attendance. As retiring President, I have to express regret that I have not accomplished as much for the Society as you had a right to expect, and the honor of the position held by me demanded ; in extenuation of my apparent neglect, I plead pressure of other business, yet my heart is in this Society and I earnestly desire its success. In the near future I shall be released from the performance of public duties for which at present I am responsible, and then, as a private member of this Society, I shall endeavor to make amends for my seeming dereliction of duty as your President. I will to-day briefly discuss some matters of vital importance to our chosen profession. Naturally we will at first speak respecting our Society and the manner in which it can be improved. As you are well aware, the late Ontario Dental Society was dissolved because it contained a few members whom the majority considered were not fit and proper persons to be members of an organization formed for the purpose of advancing the interests of the profession at large. I will here remark that I consider this move was entirely justifiable, and those members of that defunct Society who worked for its dissolution, were true, loyal and devoted members of the dental profession ; it was their idea that a Society of Dentists should be formed, governed by a code of ethics which should be signed by every individual desiring membership in the same. Our Society to-day is the outcome of that movement. We have a code of ethics governing this Society which I consider should be heartily endorsed by each and every member of the dental profession.

It is a lamentable fact that our profession contains unprincipled men, whose only thought in life 'is the acquisition of the "almighty dollar," who care not what means they adopt, provided they can secure the patronage of the ignorant of the community. I do not

mean to say that they are dishonest in the strict sense of the word, yet they adopt unfair, dishonest, and disreputable means to attract patients to their respective offices. This Society is formed primarily for the purpose of binding together for improvement and intellectual advancement those dentists who will not countenance such nefarious means of gaining a living such as I have mentioned, and who also desire that laws shall be enacted which, taken in conjunction with the hearty support and loyal sympathy of the vast majority of the profession, shall result in the building up and the perpetuation of a professional standing for dentists which will be equal, if not superior, to any other profession. Now, brethren, what can we as individual dentists, do to secure this great desideratum? We can loyally and enthusiastically support this Society. We can give the members of the Board of Directors of the Royal College of Dental Surgeons our support and sympathy in their arduous work, and we can exert ourselves to increase the membership of this Society. Considering briefly the improvement of the Society, need I impress upon you the great desirability of attending the annual meeting of this Society? You should regard this as an imperative duty; you should attend even if your presence involves great personal sacrifices. Again, respond heartily to the invitation extended to you to read papers at the annual gathering; you will be materially benefited by carefully preparing the same, and you will confer a great benefit on your auditors. Again, come prepared to intelligently discuss the papers prepared by others, "read," and be informed, and our discussions will be interesting and profitable to all. Again, see that good officers are elected to the respective offices in your gift; have live, energetic and competent men in the places of trust and honor.

Again, see how rigidly you can observe the code of ethics, do not strive to be just within the mark just sufficient to save you from expulsion. I have noticed with pain and regret that some members have not been careful in this respect. Let this slight admonition from your retiring President suffice. You know full well that we can never arrive at that standard of professional excellence for which we are striving, if we are not all, each and every one, careful of every professional act. These remarks are pertinent to the subject of advertising more than anything else. I will not speak at length on this subject, as it was ably discussed at London last year

by our esteemed and respected friend, Dr. Willmott. Again, cultivate a spirit of friendliness, of good-will one toward the other, and do not reserve all this kindness, all this courtesy, for our annual meeting, exhibit it one toward the other in your daily intercourse. Be friendly, be kind, be courteous. It will not be long before we all will leave this scene of strife and turmoil, and journey to the great beyond. Many of the faces that smiled on me some eight years ago, at my first Dental Society meeting, are missing to-day. You miss some of the familiar faces that were accustomed to be present at our annual gatherings.

Should not our depleted ranks teach us kindness and courtesy to each other? Brethren, there is a living here for us all. If the majority of the dentists in your city or locality desire to have a meeting to discuss some matter of importance to them, attend the same. Do not plead press of business as the cause of your absence. Do not say that actually you have so much to do that you cannot possibly spare a moment. Your practice is so extensive that it consumes every minute of your valuable time, hence you cannot go. Be present, if you do lose a few dollars. Now, you who have extensive practices show that you respect and appreciate your less fortunate neighbors who have less. I believe in dental democracy. I believe that every dentist, so long as he lives up to the code of dental professional ethics, and is a respectable member of society, is equally as good as his neighbor. Let me impress this point on you strongly, viz., that both as a society and profession our success depended largely on the manner that our successful dentists treat those who are not so favorably situated as they are. Let me repeat this: members of this Society be kind, be courteous, be thoughtful one to the other. Do not, I beg of you, be guilty of the ungentlemanly conduct of telling how much you do. How that policemen have to keep the crowd from ruining your furniture in their mad rush to secure your distinguished services, while your dental brother across the street, with a thin, wan and pinched face, betokening poverty, watches with envious eye your success. Brethren, do not work entirely for yourself. Do a little for this Society, for your chosen profession. If you cannot take a prominent position in this Society, you can, at least, be mindful of the feelings of those who are professionally associated with you. There are reasons for these remarks of mine, and I trust that they will be received in the true spirit, and that much good will result from my words.

I now come to speak concerning a matter of great importance to the profession, that which is a source of anxiety to many, and respecting which there exists great diversity of opinion, viz., the establishment of a dental college. I believe that we should have a properly equipped dental college, we should possess a building which would be a credit to the profession, and that should be supplied with all the necessary appliances for the imparting of a sound, practical, and theoretical dental education ; in conjunction with these essentials, the college should have a competent faculty. Given all these requirements, we would not only have students from our own Province, but from all parts of the world. How are we to secure all this ? By hearty co-operation and united action after a free, calm, and unprejudiced discussion of the subject in all its details. Allow me to say that I have not one word to say in disparagement of the work performed by the Dean of the College, Dr. Willmott. No one in Canada has done so much for the profession as he. Our present professional standing is largely, if not wholly, due to his efforts. The profession are under great obligations to him, and any future arrangements that are made in regard to the College and the Faculty, cognizance should be taken of what he has performed in the past. I wish further to say that I am perfectly satisfied with the Faculty. They do their work well, they are learned, intelligent and common-sense gentlemen, and the result of each year's examination abundantly prove their fidelity to the trust reposed in them. Now this is all right for the present ; but, as sensible men, should we not make some provision for the future ? In the natural course of events we cannot expect to have in the future our College in the same quiescent, peaceful, and flourishing condition as at present. Is it not, then, the height of folly to have our College managed just for the present ; no thought of the future ? For a moment, suppose that all the Faculty desired to leave our employ, where would we go in search of our College ? If death overtook those in charge we would then be compelled to assume all responsibility. I therefore emphatically remark that the Dental College should be managed by the Board of Directors of the Royal College of Dental Surgeons that all fees should be paid to the Board, they to assume all liabilities. The time to do this is when the College is prosperous, when everything in connection therewith is in the above mentioned condition. The

Faculty should be well paid for their services, they should know what amount they are to receive as a reward for their labor. They would not be in the same feast and famine condition as at present, viz., one year prosperous, large salary ; next year unsuccessful, small salary. What do I propose? This, that the Dental College should be owned and controlled by the dental profession, acting by their representatives, the Board of Directors of the Royal College of Dental Surgeons. The Faculty should be employed by them, and be absolutely under their control. The Board should grant a sum of money towards the erection of a college building, this amount could be increased by voluntary subscriptions from the members of the profession, and each year, as per arrangement agreed upon, each member should be compelled to give a certain sum, viz., three dollars, towards this laudable object. I know that all this will involve great work and great anxiety, but I say we owe a duty to the future ; and because the College, as at present constituted, supplies present needs, there is no excuse for us shirking our duty and leaving this important matter to be settled by posterity. I would like to speak concerning the importance of subscribing to a dental journal ; all I have said *re* attending our annual meeting and reading papers will apply with equal force in this regard. Subscribe for a good dental journal, and send items of interest to be published for the benefit of the profession. I will not further occupy your time. I again thank you for the honor conferred on me a year ago when you elected me as your President. I trust you will forgive my many shortcomings ; my hope, my desire is this that this Society will prosper, that it will be a means of good to each and every member of the profession. Gentlemen, again I thank you.

Our College.

There is no denying the fact that considerable disaffection among the members of the dental profession in Ontario has grown out of the management of the Dental College. The discussions that have taken place at the last three meetings for the election of Directors show this only too plainly. It is our opinion, however, that all who took part in those discussions have the best interests of the profession at heart, and that it would not be a very difficult matter to effect an arrangement which would be satisfactory to all parties concerned, and to that end we would like to make some practical suggestions. As the matter now stands, the Board of Directors appoints the professors, prescribes the curriculum of study, dictates the length of the session and the amount of fees to be charged, and makes the Faculty a grant of \$150 annually. All other matters pertaining to the management are in the hands of the Faculty. Each student in attendance at lectures pays \$100 annually to the Registrar of the College, and from the sums thus received the Faculty pays all expenses, and divides the balance among its members. Now there can be no doubt that, with an attendance of over seventy students, such as there was last session, and an income of over \$7,000 a year, the professors get very well paid for their services; but it must be remembered that so large an attendance is very unusual, and as the standard of matriculation has been raised, is not likely to occur again. Then, too, it should not be forgotten that when the school was first established the professors did not receive anything like a fair remuneration for their services, and a little extra pay now should not be begrudged them. While we believe, however, that the Faculty should be liberally dealt with, both on this account and on account of the excellent services they have rendered in the past and are now rendering to the profession, yet we are of the opinion that the school established by the Board of Directors, and regulated by them, should be maintained by them, and that if the profession is liberal to the school, it should know the extent of its liberality. It is true the Faculty is responsible to the Board, and the Board to the profession, but as a matter of fact the working expenses of the College are never made public, and to this fact,

perhaps, more than to any other, is due the dissatisfaction of so many members of the profession. All this would be avoided if the Board were to assume entire control of the College and pay the lecturers a fixed salary. It may be said that the plan was once tried and proved a failure, the Board not being able to pay expenses. At that time, though, the attendance was small, and the expenses comparatively heavy ; moreover, the Board itself had no resources worth mentioning, and no means of obtaining help from the profession at large. Now, however, the situation is quite different. The number of students is much greater than formerly, and even after paying the professors a liberal salary, there is not likely to be a deficit. The Board has a comfortable surplus on hand of over \$3,000, and by a resolution passed almost unanimously in 1888 by the members of the College, the Board was empowered to have the law so amended as to provide for the payment by all licentiates of an annual fee, for the building and equipping of a Dental School. This being the case, we can see no danger of financial failure.

Another change which we think should be made, is in the manner of conducting elections. At present a licentiate who wishes to record his vote can do so only by attending the meeting in Toronto. As a result, only a comparatively small number of the licentiates ever vote at all. Possibly if the voting was done by mail the number of votes registered would be still less, but no one could then say that he had not had an opportunity. We doubt whether there is any class of dentists that takes more interest in the elections, and would be more likely to vote, and vote intelligently, than the recent graduates, and yet they are the very ones who, under the present arrangement, can least afford the loss of time and expense attendant upon a journey to Toronto. We know that when it was proposed a couple of years ago to change the manner of voting, the proposal was voted down by a large majority. It was thought then that the advantage of meeting together overbalanced the objection. But now that we have a Dental Society which will probably hold a meeting every two years in the city of Toronto, and which will undoubtedly be well attended, there is no reason why a meeting of the College should not be held at the same time, for the discussion of business matters, even if the voting or part of it should be done by mail.

We are of the opinion, too, that the Board of Directors should be a Board of Management only, and that the examiners of the College should be appointed by them. Years ago, when the College was first established, the Directors were probably elected because of their fitness to examine candidates, but such is not always the case now. We have not a word to say against the present Board. We believe it is composed of men well fitted to fill the position they occupy, but we do say that there have been men acting as examiners in past years, whose total unfitness for the position made them appear ridiculous to the students, and caused their fellow-examiners considerable trouble. So long as we elect men members of the Board not because of their fitness to examine, but because we endorse the particular line of policy they have espoused, we are bound to have this difficulty, and as matters now stand we can see no way to remedy it; except by having the Directors appoint examiners whose ability and fitness for the position are unquestioned.

We doubt whether it would be wise to attempt too radical changes at once. There are legal points to be settled, and some of the changes suggested would have to be made by the Local Legislature, so that time should be given to their consideration. We are in hopes, however, that some changes will be made, either in the line suggested on in some other direction, which will be satisfactory alike to the Profession, the Board and the Faculty, and which will restore harmony among the licentiates of this Province.

Editorial.

City vs. County.

One of the greatest mistakes many newly-fledged licentiates make; is rushing to the cities to settle. There are circumstances which justify some in choosing a city career in beginning ; but it is a mistake to suppose that there is either less money or fame in a country practice. A beginner in the city has to compete with numerous and old-established practitioners; he has to begin with a maximum of expense and a minimum of income ; he is tempted, when practice comes slowly, to cheapen his fees and lower what might become a good reputation. Unless he has capital to fall back upon, he must undergo no small share of worry in trying to make both ends meet ; and at best, he frequently finds at the end of ten years, that he is financially no better, if not worse, than when he started. It has been a struggle against debt and difficulties and maintaining appearances.

On the other hand, there has been scarcely an exception to the success of young men who began in the country and the smaller towns. It is safe to say that by far the most prosperous, and certainly the healthiest, among our licentiates, have been those who hung out their "shingle" in our villages, and whose income, in spite of lower fees than prevailed in the cities, has almost invariably exceeded their outgo.

The provinces have a score of places with populations varying from 2,000 to 3,500 with no resident dentist. Nova Scotia, with its English population, has many small towns which badly need a dentist. We have repeated applications from country towns and villages for resident dentists, who will get whatever practice is to be had.

A Dentist in Parliament.

Dentists throughout the Province of Ontario, are, no doubt, glad to know that for the next four years, at least, a member of the dental profession will sit in the Provincial Legislature, as member for North Perth. Dr. Ahrens, the successful candidate, was born in the town of Berlin, in 1851, served as a student in the office of Dr. Wells, of Waterloo, graduated from the Toronto Dental College in 1878, and immediately after began the practice of his profession in the town of Stratford. As a dentist he has been very successful, and his popularity as a citizen may be judged from the fact, that he is the first liberal candidate elected in North Perth for twelve years. We trust that Dr. Ahrens, through the influence he will be able to exert as member of Parliament, will see that the rights of Ontario dentists are not infringed upon in any way, and that we shall have no more dentists licensed "by Act of Parliament."

The Ontario Meetings.

The reports elsewhere of the "Ontario Dental Association" and the "Eastern Ontario Dental Association," show that the profession in the premier Province of the Dominion is fully alive to its interests. There should be no difficulty in making this JOURNAL a monthly, if our subscribers would take the hint of Dr. Davis, "*Subscribe and contribute.*"

With reference to the death, on the 26th of April, in the office of Dr. Gendreau, Montreal, of a young man while under the influence of the vegetable vapor introduced by Dr. Mayo, of Boston, a full report will be presented in our next number. In the meantime, the feeble attempt of interested parties to blame the vapor as the direct cause, in face of the fact that it has proved itself to be the safest anæsthetic on record, and in every way much superior to nitrous oxide gas alone, has failed. As manufactured in Boston and Montreal, its effects are pleasant, deeper, calmer and safer than the purest nitrous oxide ever made.

Reviews.

A new Medical Dictionary. By GEO. M. GOULD, A.B., M.D., Ophthalmic Surgeon to the Philadelphia Hospital. A compact, concise vocabulary, handy in size, low in price, convenient for reference, authoritative, based on recent medical literature. This is not a mere compilation from other dictionaries. It includes several thousand words not contained in any other work of its size, and until the present year not in any other medical dictionary. Small octavo, 520 pages, half dark leather, \$3.25; with thumb index, half morocco, marbled edges, \$4.25. P. Blakiston, Son & Co., 1,012 Walnut Street, Philadelphia.

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Original Communications.

Implantation of Teeth.

By A. H. HIPPLE, D.D.S., of Stratford, Ont.

(Read before the Ontario Dental Society.)

When, a little more than four years ago, the announcement was made that it was possible to implant dried teeth, extracted possibly years before, into sockets freshly made in the jaws of healthy individuals, and that such teeth, under favorable circumstances, were not only tolerated by the surrounding tissues, but, by virtue of a union of some sort, became firmly fixed in the jaws, and as useful as natural teeth, it was received with incredulity on all sides. Many medical men said that it was impossible, because it was a distinct violation of the fundamental principles of medical science, and, of course, that settled it. A tooth that had been extracted for any lengthy period was to them a dead body, and consequently, when inserted into the jaw, was foreign matter; and living matter would not, they said, accommodate itself to a foreign body and form a union with it. They even went further, and said that dead matter introduced into the human organization was likely to cause serious trouble, because nature would not tolerate it. But the scientific dentists and the enterprising dentists, while they may have been made more cautious, were not deterred by statements such as these. They remembered that at one time, medical men, and

many even of their own profession, looked upon the use of amalgams as filling materials as endangering the lives of their patients. They remembered, too, that the use of rubber as a base for artificial dentures was opposed on the same grounds ; and so, with a perfect knowledge of the anatomy of the parts to be operated on, and with all the care in the direction of perfect disinfection which modern science could suggest, they went on investigating and experimenting.

What has been the result? Hundreds of teeth have been implanted, and so far from death or serious illness being the result, in the great majority of cases the operation has been eminently successful, and the result gratifying to both patient and operator. It is true the word success must be used in a modified sense, as it may be questioned whether sufficient time has elapsed to enable a proper decision to be arrived at ; but, inasmuch as teeth which were implanted more than four years ago are still doing good service, and since, too, even if at this late stage they should loosen and become useless, it would require nothing more than a slight temporary inconvenience to have them replaced by others, I think the operation may safely be said to have been a success in the majority of cases reported.

This being its past history, it is interesting to speculate as to its future. That the implantation of natural human teeth will ever take the place of artificial dentures is impossible, on account of the limited supply of suitable material ; for, as dental science becomes better understood, the tendency to conservation of the natural organs is increased, and the number of healthy teeth extracted is decreased. But is it not possible that artificial teeth made of porcelain, or some other mineral material, may be so prepared that, when implanted into artificial sockets, they will be encapsuled and firmly retained? Some will say at once that this is impossible, because the presence of the pericemental membrane is necessary in order to secure union ; but the experience of Dr. Curtis, who has implanted about fifty teeth with good success, shows that even this is not necessary, for from nearly every tooth he purposely scraped away the entire periosteum without apparently endangering the success of the operation in any way.

The operation of implantation in itself is a comparatively simple one, and there is not wanting variety in the methods pursued by

different operators. The simplest method known to me is to place the patient under an anæsthetic, and then, with a small trephine revolving at a high rate of speed, to cut at once through the gum and the layer of compact bony tissue which forms the surface of the alveolar ridge. The cancellous and comparatively soft tissue underlying this can be cut away with a spiral knife, and enlarged by means of a reamer until approximately of the size, shape and depth required, and which can be ascertained by trying the tooth in the socket. The latter should preferably be slightly smaller than the root, so that when the tooth is driven to position it will be firmly retained. To secure the best results, teeth for implantation should be carefully selected. Abrasion or erosion of the crown, calcification of the pulp, or softening about the neck of a tooth, makes it unsuitable for this purpose, although even such teeth have been successfully implanted. The root should be carefully examined, preferably with a lens, and if there is any sign of exostosis or absorption, or if any deposits of calculus are found, it should be rejected. Very young teeth should also be avoided, because of their faulty structure and imperfect development. In short, only such teeth should be used as are fully developed, and which were at the time of extraction perfectly healthy. The tooth should be prepared by drilling into the pulp chamber, and thoroughly cleansing the pulp canal, which should afterwards be carefully filled, the apex of the root being filled with gold, and rounded off so as to be perfectly smooth. The tooth should be thoroughly disinfected by being allowed to remain for some hours, at least, in a solution of bichloride of mercury, 1 in 1000, and the socket itself should be washed out with some germicide before inserting the tooth. As bichloride of mercury solution has an injurious effect upon steel instruments, absolute alcohol may be used for the cleansing of the socket and the final disinfection of the tooth.

After the tooth is inserted, some means should be used to hold it firmly in position until union has taken place, and for this purpose various appliances may be used. Ligatures can be employed in nearly all cases; and, in the case of bicuspid, if the occlusion is favorable, nothing more may be necessary. In the case of incisors, a very good plan is to fit a thin platinum cap to the implanted tooth and the one on each side of it, and cement it

in position. Another plan which may be adopted under the same circumstances, and which renders the teeth less unsightly, is to lay a gold or platinum wire along a groove in the cutting edge of the implanted tooth and the adjacent ones, and secure it by means of gold foil packed about it. Other methods adapted to the particular cases in hand will suggest themselves to the operator, and need not be described at length, but it should be remembered that experience seems to show, that success depends largely upon keeping the tooth fixed firmly in position until the deposit of bone about it has been completed.

It is interesting to note, however, that no two operators seem to proceed in exactly the same way, and that some particular part upon which one depends largely for success, is entirely disregarded by some one else who has been equally successful. One dentist, for instance, uses only teeth that have been freshly extracted; another reports success in the case of a tooth extracted seventeen years before, and implanted in the mouth of a negro seventy-two years old. One takes care to preserve the periosteum intact; while another purposely scrapes it off. One tells us, that to insure success, the tooth should be soaked for days in an antiseptic solution; while another equally successful operator is quite satisfied with a bath of ten or fifteen minutes. One cuts off the end of the root; another leaves it on. One takes care to wash out all the little chips of bone from the socket; while another expressly states that they should be left there, because, as they contain bone corpuscles, they will form a nuclei for a deposit of bone about the tooth. And so they go on giving us conflicting advice, and at the same time reporting success, sometimes under circumstances where success could hardly be expected.

As to the changes which take place after a tooth has been implanted, there is also a great diversity of opinion. That a union of some kind takes place is beyond a doubt, but how it is brought about is not so well understood. Dr. Younger believed that the periosteum of the tooth was revived and resumed its normal function; but, as teeth have been successfully implanted from which the periosteum has been entirely removed, this must be erroneous. Two other theories have been advanced. One is that the fibrillæ of living matter from the surrounding parts penetrate the minute openings into the cementum of the root, and

that its porous structure becomes filled with living matter, a vital union being formed in this way. If the periosteum takes any part at all in this process, it is supposed to act as a leader, just as a sponge does in sponge-grafting. The other theory is that there is no vital union, but that there is a deposit of bone all about the root, and that the tooth is held mechanically.

All this teaches us that, as yet, we don't know very much about implantation; and that there is plenty of room for interesting experiments, and careful observation of results.

But let it not be supposed from the foregoing that implantation is a simple operation which any one can perform in a slipshod manner, with reasonable hope of success. There are dangers on all sides to be guarded against. No one should attempt the operation who is not thoroughly familiar with the anatomy of the parts. Serious complications might arise from even a slight deviation from the proper course in drilling. In the case of superior bicuspids, the location of the floor of the autrum is very difficult to determine, and its perforation would be serious, and possibly dangerous. In the cuspid region the nerves are unusually large, and the vascular supply is derived from vessels which have no fixed canals, thus rendering this apparently safe region a somewhat dangerous one. In the case of centrals, unless the drilling is done slightly in the direction of the laterals, the instrument is liable to penetrate the palatal nerve canal. In the case of all the lower teeth, extreme care must be taken not to drill into the inferior dental canal, the result of which would be serious. Then, too, in preparing the tooth to be inserted, it should never be forgotten that it may possibly contain latent disease germs, and the disinfection should, therefore, be made as thorough as possible.

Knowing, however, the difficulties to be encountered as well as the dangers to be guarded against, and how to avoid them, I think that practitioners should perform the operation whenever the circumstances will justify it, and carefully note the results. By so doing, I feel confident that in the course of a few years at most, we will have arrived at the proper conclusions in reference to the scientific questions involved in this operation, and the best methods to be adopted in performing it.

Root-Filling.

By R. G. McLAUGHLIN, D.D.S., Toronto.

(Read before the Ontario Dental Association, Toronto, July, 1890.)

I find the more experience I have in this special practice, the more I read of the subject, and the more I view it from the different standpoints, the more I am impressed with its practical importance to the dental profession; and in this short paper I cannot expect to do full justice to the subject, but hope only to point out a few landmarks, and, if possible, provoke you with whom I may differ, to a lively discussion on the matter, that we may all learn.

Certain it is, the first-essential in the treatment of these cases is a thorough understanding of the anatomy, the physiology and the various pathological conditions of the parts included.

By the title given the paper, I am freed from a discussion of the previous condition of these roots—whether or not they are the proper subjects for pulp-capping or the destruction of these pulps—and enter at once upon a consideration of the tooth with a dead nerve, whether recently or remotely made so.

Now, at the very beginning we must admit, that a rule can hardly be formulated for the treatment of this or any other pathological condition which is not subject to many exceptions; and you will agree, that the successful practitioner is the one who looks carefully over the whole field before deciding upon his mode of treatment.

To systematically discuss this subject, we must divide it into two parts: I. The varied conditions in which we find the roots and surrounding tissue; and II. Root filling proper, and the material therefor.

Under the first head we find, at least, four different classes: 1st, Freshly devitalized pulps; 2nd, Pulpless roots, causing no irritation; 3rd, A condition called blind abscess; 4th, Alveolar abscess with fistulous opening.

The first two classes will generally admit of the same treatment, and may, therefore, be discussed as one.

In these cases, the first effort naturally is to open freely into the pulp chamber, and remove as nearly as possible all parts of the contents. This is an operation which, in most cases, demands from the operator not only a considerable amount of skilful manipulating of instruments, but as well a great deal of downright, patient toil.

To do this effectually, the rubber dam should be applied whenever possible. The opening into the canal or canals should be made as liberal as the case will allow, so that a free use of the broach be made practical. Having removed whatever solid remnants there may be, I have always found it good practice to thoroughly syringe out the pulp chamber and larger canals with tepid water. This seems to thoroughly cleanse the parts, and washes away all the loose debris that otherwise is likely to be forced into the canals. Now, the next thing I aim at is, to put the canals and tubuli in a condition that they will readily absorb the antiseptic or disinfectants to be afterwards used. To this end, I dry out the canals by means of a few shreds of cotton wrapped round a broach. After wiping out all visible moisture in this way, aided sometimes by the use of absolute alcohol, I then make use of a hot-air syringe—driving the heated air right up into the canals, till the parts appear dry and hard. I now follow up with a thorough injection of my choice disinfectant—whether it be camphophenique, bichloride of mercury, or peroxide of hydrogen—I have used the first of these for some time, with a great deal of satisfaction. Dr. Atkinson thinks that the best disinfectant is produced from a grain of bichloride of mercury in an ounce of hydrogen peroxide. Now, the dental tubuli and parts having previously been so thoroughly dried out with the hot air, the disinfectant used will be readily absorbed, and all contents of the tubuli rendered perfectly harmless. Now dry out the parts once more, and the root is ready to receive the filling ; and this brings us to the subject of immediate root-filling.

Some would now say, "Seal up the crown cavity temporarily, and send the patient away for some weeks." Time will not permit me to discuss the subject in this paper, but I may be permitted to say, that so far, as a rule, I have practised immediate root-filling in such cases, and am satisfied with the results. Perhaps, in discussing this point, some of the older members can give us the necessity for

or the advantages gained in a delay of three or four weeks in the completion of the operation.

In the third class under consideration, we have what is called blind abscess or confined pus at the end of root, which is generally attended with more or less pain and soreness. In such cases it is better, first, to simply wash out the pulp chamber, and by passing a fine broach into the canals, facilitate the escape of gases, and thus, at least give temporary relief. If there be merely pericemental inflammation, it may be reduced by the persistent local application of counter-irritants, such as "iodine and aconite," or the capsicum plasters. Such applications added to systemic treatment acting on the secretory organs, will aid the matter promptly and reduce the pain in almost every case to a minimum. If there be much pus, iodide of potassium, in doses of five to fifteen grains three times a day, will prove a valuable remedy. It is a powerful resolvent and alterative.

When, as soon as the tooth and patient are in a condition to be operated upon, a more thorough removal of septic matter in the canals and dentinal tubes is commenced. Here, the great object after thoroughly cleansing the parts is to force the medicine used up through the canals into the sac.

Some very successfully pump it up with shreds of cotton wound round a broach, others with a judicious use of the hypodermic syringe. In this case a very good plan is to use a strong air syringe, which, in my opinion, cannot fail to force the medicine to the farthest extremity. Here, the choice of a proper medicine is of considerable importance. We have at the end of that root an amount of confined pus, which must be gotten rid of before any progress can be made. In such a case I think peroxide of hydrogen is of especial value. It will penetrate it and cleanse it by combining with the pus gases. It swells and effervesces and thus drives out the pus. Having satisfied yourself that the medicine has indeed got there, I would seal up the cavity temporarily and send the patient away to await developments. It may be that two or three such treatments will be necessary to restore the parts to their normal healthy conditions. Here, as in other places, perseverance and judgment in every step are necessary to final success.

In the fourth class, we have to contend with an abscess and fistulus. Here the proper course is to force some such strong medicine

as creosote or campho-phenique clear through the track. Having accomplished this with satisfaction, the greatest difficulty in general cases is over, and nature will, in most cases, attend to the rest. I find the easiest and most effectual method of accomplishing this is first to insert a phosphate filling in the crown cavity, leaving a small opening leading directly to the pulp chamber, just large enough to admit the fine point of a hypodermic syringe, and through this opening inject forcibly the medicine used, till you find it coming out through the fistulus opening.

One of the most successful cases of the kind I have had, was in the case of a lady about fifty years of age. I injected the track with campho-phenique, and the second day afterwards followed with a strong solution of listerine. After a space of four days I examined the case again, and granulation had set up so rapidly as not only to fill up the entire track, but to fill up and bulge out the external sac as well, so that at the first glance I thought that the abscess had returned as violently as before, but you may be sure, was agreeably surprised to find the true state of things.

Now, we come to the second part of our subject, viz. : The material for the root-filling, and the operation thereof. On the choice of material for this purpose, there is, I venture to say, as great a diversity of opinion in the profession as in any other part of dentistry. Each one appears to have his own ideal, and is prepared to stick to it with all the tenacity and doggedness of a true-born Scotchman.

Before discussing the merits and demerits of the different materials, let us look for a moment at the qualifications required of an ideal root-filling.

1. It should be as indestructible as possible, so that for all time it may perfectly occupy the space taken up by it when first inserted.
2. It should be non-porous, so as not to form a receptacle for the accumulation of gases.
3. It should be a non-irritant, so that any portion that may accidentally be forced through the apex, will be tolerated by the tissue.
4. It should be an antiseptic material.
5. It should be penetrating in its action, so that it will go to the end and soak into the tubuli.
6. It should be of such a nature so as to admit of being worked into the canals without excessive drilling.

Now, our object is to choose a material possessing at least the more important of these qualifications. We may run over a few, such as zinc chloride, gutta percha, chlora percha, gold, lead cones, saturated cotton, tin-foil, etc.

At present there seems to be a race between zinc chloride and gutta percha. Gutta percha is used extensively, and by good practitioners ; but, after all, there are serious objections to it for this purpose. It is somewhat absorbent, is to a certain extent porous, and is not an antiseptic. No doubt, one great reason why it is so extensively used is that, when made into a solution with chloroform, it is easily pumped or pressed into the canals. For my own part, I have used zinc chloride, either partly or entirely, in almost all cases with very good satisfaction. From its affinity for moisture, it will penetrate deeply and persistently into the tubuli, and, being a permanent antiseptic, will act on whatever tissue may be in with them, and render it non-decomposable. When mixed to a creamy paste, it can with facility be worked into the smaller canals by means of a fine broach. A good method in the case of inferior roots is to drop the liquid in first, and after this is worked into the canals, follow with the powder, which will be readily taken up by the liquid. But here comes the objection ; it is an irritating material, and if any, by accident, should pass through the apex, the tissue will decidedly object. Especially is this to be feared in the case of lower roots, where gravitation lends its aid. Now, what we want is something with which we can first hermetically seal this opening. Here gutta percha might be used to advantage, but in the smaller canals operators have found difficulty in reaching the end of the canal with this substance, and, besides, its porous and absorbent qualities are against its use. Gold is a good material for this purpose, but to get it there necessitates excessive canal drilling, which I consider a dangerous practice to the safety of the tooth. I find that a few shreds of cotton, saturated in oil of cloves or campho-phenique, can be carried with a fine smooth broach even into the smaller canals. If properly packed, it is practically impervious, and hermetically seals the opening, and, if necessary, can be removed more readily than any other material. Statistics given by practitioners go to show that almost universal satisfaction has been given by sealing the apical opening in this manner. Now follow, as before stated, with the thin paste of chloride of

zinc. After pressing in the paste persistently with a suitable broach, it is well to take a small pledget of cotton or piece of gutta percha and press the paste more compactly into the canals. This will insure that no vacancies are left for the infiltration of fluids, which would prove as troublesome as so much dead nerve remaining.

In substance, I may say that the successful treatment of roots depends largely, first, upon the thoroughness with which the decomposed tissue is removed or destroyed, and, secondly, upon the thoroughness with which the roots are filled, and the space previously occupied by the pulp tissue supplanted by a non-decomposable substance.

Amalgam Fillings.

By A. W. SPALDING, L.D.S., Toronto.

(Read before Ontario Dental Society, Toronto, July, 1890.)

The subject of my paper is an old one, yet ever new, inasmuch as we continue to ask the question, "Why do amalgam fillings fail?" It is not my purpose to give the history of amalgam, although that might be interesting, but to enter at once on that phase of the subject which is of more immediate interest to us, viz., its practical treatment.

I do not expect to offer anything which has not been said before, but I do not think our time will have been spent in vain, if a consideration of the subject shall awaken sufficient interest to induce some one to exercise more care, and thus make better fillings. I do not impute carelessness to those present. I believe the men who take an interest in conventions, are not likely to be the sort of men who care only for the dollars they can get out of their practice; yet some point may have escaped notice in the past, which, by receiving attention, may lead to better results. We cannot expect any man to excel in every point, and it is noticeable that many of our best operators in gold make very poor amalgam fillings. The reasons for success or failure are in the attendant conditions, and if we could thoroughly understand and control these, we would be able to make amalgam fillings that would endure.

Some of these conditions are to be found in the structure of the teeth we fill with amalgam, others in the position of the cavity, difficult of access, and still others in the operation itself. It is usually chosen for teeth which are of so poor structure, or so weakened by the ravages of decay, that nothing else is available. It is, therefore, not surprising if many amalgam fillings are lost, reducing the average period of duration very low. A tooth whose structure is termed chalky, in which we cannot get clearly defined margins to the cavity, or sharp anchorages for the filling, is not of suitable structure to be filled successfully with gold; the phosphates are soluble, and gutta percha is too easily crushed out of proximate cavities; we must then have recourse to amalgam.

We begin the preparation of the cavity for any filling by cutting away, preferably with a chisel, the overhanging edge until we have free entrance. Then with spoon-shaped excavators, remove loose debris, that we may see the condition of the cavity and our work, as we proceed. If an attempt is made to excavate the cavity without thus obtaining free entrance and vision, the instrument may strike the pulp, causing great immediate pain and possibly after complication, or if the pulp be not exposed, much of the pain caused in excavating a sensitive cavity is due to causes which are avoidable. We usually find a leathery brownish layer indicating the character of decay. This must now be thoroughly removed, which is best done with spoon excavators getting under the edge and moving the entire mass with a quick motion. This usually causes considerable pain, but usually one well-directed motion so far separates the entire mass, that the further preparation of the cavity is, or can be made comparatively free from pain. The causes and prevention of this pain it is not within the purposes of this paper to discuss.

The next step is to shape the cavity and margins with greater exactness. With a suitably shaped chisel or trimmer for the margins, and spoon-excavators for the interior of the cavity, trim the margins to a right angle with the external surface of the enamel, giving particular attention to the cervical margin, if the cavity is a proximate one. Thus there are left no thin edges of enamel to crumble or of amalgam to be broken, and leave a crevice for the recurrence of caries. As amalgam is not easily forced into a fine sharp line or pit, the undercut should be made broad, as with a spoon or hoe excavator, and need not be deep, only using a drill

when fastening cannot be obtained in any other way, and then using as large an one as possible.

Sharp angles are more liable to be broken than the round and broader form of fastening ; thus the filling being loosened under pressure. Care is necessary to avoid wounding the pulp. Make the margins smooth with a fine corundum point or a stone, in the engine or by hand, to secure close adaptation of the filling. This may also close minute openings in the enamel which would take in by capillary attraction, such fluid substances as might cause renewal of decay. Carefully wipe out the cavity with cotton or spunk, to remove all particles which would prevent perfect adaptation. The alloy for amalgam should be such as will give hardness sufficient for the necessary pressure of mastication, non-shrinkage and retention of form in which it is made. It should also have edge strength. It is not the intention to discuss the composition of the various alloys and their relative merits. That would form material for a separate paper. The points I have mentioned are all that are absolutely indispensable.

The amalgam must not contain an excess of mercury, as that destroys the edge strength, and causes the filling to change its shape—approaching the spherical form, drawing away from the margins. All the mercury that is necessary is that quantity which will unite the particles together into a solid mass, without producing a soft surface when pressed into the cavity. There seems to be no fixed rule as to the proportions ; some makers of alloys say, one of mercury to three of filings ; others, one to six. Alloys containing tin in excess of silver require more mercury, and yet are more injured by an excess than those which have less tin and more silver. With such alloys, therefore, it is necessary to use more care in the mixing. Place a small quantity of mercury in the hand, or in a mortar, and add a little of the alloy ; rub together until thoroughly united, then add more filings and rub again ; continue thus until the mass works into a powder. Thus the point is secured at which it will unite under pressure in the cavity, and at which it makes the best filling.

Whether made into discs by the use of a condenser or not, is a matter of convenience. In some positions of the cavity, it may be most easily inserted in the form of discs, and in others in powder.

Dry the cavity, and wipe out with antiseptic—creosote, oil of

cloves or of peppermint—and with suitable instrument carry in the amalgam, a little at a time, and with smooth, round or flat-faced burnisher, rub into undercuts; carry in more, and repeat the pressure, and continue until the cavity is full. I never carry amalgam to a cavity with pliers and seldom with a spoon. I prefer serrated-faced steel carrier to start with, and after the first is placed I use the burnisher, with which I condense it. By touching this to the moist surface of the lip or tongue (of the patient, not your own), it will pick up the amalgam in small quantities. Thus, no time is lost in changing instruments, and so it will not be necessary to work from 8 a.m. to 8 p.m. to accomplish enough to satisfy a reasonable man.

The filling should be built on the proximate surface to the original form of the tooth, being flat or concave at the cervix, and rounded outward to knuckle against the adjoining tooth near the grinding surface, and on the grinding surface, concaved so that the lowest point is not where the filling lies against the enamel, but is in the centre of the filling, so that the action of mastication will force the food away from the line of union, and thus make it self-cleansing. We cannot lay too much stress on the proper shaping of the filling. While fresh, it should be burnished over the whole surface, and trimmed so that it will not strike an occluding tooth, that it may not displace or crack it before it is hard. It is well to polish the filling after it is hard, that any overhanging or rough points may be made smooth. I find celluloid tape excellent for proximate surfaces, and a rubber or wood cone in the engine, with pumice for grinding surface. Never burnish, lest the edges be broken, keeping in mind that the object of filling is to restore the continuity of the enamel, and is of value only as this is accomplished. Some causes of failure are too much overhanging wall, making a deep undercut into which the amalgam is not closely packed, and in which is probably left a portion of the carious substance, which may renew the decay and undermine the filling. This weak ledge, being not well supported, is easily broken by pressure; not condensing the amalgam against the margins of the cavity, thus leaving a capillary opening; leaving amalgam projecting beyond the line of the enamel, or not filling it flush. In cavities lined with oxyphosphate, the cement may come on to the enamel, and not be entirely covered with the amalgam. This

line of cement will wash away, leaving an opening for lodgment of food ; or, the enamel being deprived of its support, breaks.

Food allowed to lodge around and upon the teeth, affording material for the production of some form of acid, which may insinuate itself into a minute opening, which may exist notwithstanding the utmost care of the operator. The cervico-buccal and cervico-lingual angles are weak points, and must be well looked after in preparing the cavity, or decay will recur here.

This subject is practically inexhaustible if followed into all its branchings, but this I do not propose to do. My object is rather to give the leading thoughts, which I have done briefly, as this is a much-discussed subject, and I do not wish to tire you. I hope rather to learn from the discussion which shall follow than to impart knowledge.

Closure of the Jaw due to Dental Irritation.

By W. R. HAMILTON, L.D.S., D.D.S., Chesley, Ont.

It is a well authenticated fact, that irritation in certain parts of our body acts upon the sensory nerves in that region, carrying an impulse to the brain, which, in its turn, is reflected to other organs most remote from the seat of mischief.

We meet with a common instance of transference of impressions, with regard to dental irritation, where pain in a carious tooth is referred to a sound one, even in the opposite jaw.

My attention was drawn to a condition of the above about the middle of April last. A patient came to me complaining of neuralgic pain in the face and neck, also stiffness of the jaw, which was gradually closing. Upon examination, the mouth not capable of being opened above a finger's width, I found the entire upper teeth badly calcified and affected with caries, some being entirely decayed to the gum margin. The lower teeth were in a naturally healthy condition. After a thorough examination, I advised the extraction of the entire upper teeth, and replacement of such by a temporary denture. She having consented, this was completed in a few days, the pain ceased almost immediately after extraction, and within one month afterwards, the muscles had relaxed, and the jaw could be lowered to its normal position.

This pathological condition I feel confident to have been entirely the result of dental irritation, the teeth being in an unhealthy and continued irritable condition, acting upon the sensory or superior maxillary division of the fifth nerve, carrying an impulse to the brain, which was reflected through its motor root to the muscles of mastication, producing a contracting motor influence. I have no doubt, had this case been allowed to remain, the contraction would have become so great, that finally it would have resulted in tetanus.

Adhesion vs. Atmospheric Pressure.

BY SYLVESTOR MOYER, D.D.S., L.D.S., GALT, ONT.

Dr. E. A. Teskey's article in the July number of the DOMINION DENTAL JOURNAL under the above heading, resolves itself into: Can a vacuum be formed by the use of an air-chamber? To this Dr. Teskey replies: "I think I am safe in asserting that under the conditions imposed it is impossible to create a vacuum by withdrawing the air, or any part of it, from the ordinary air-chamber."

Certainly, if no vacuum be formed, all must agree that the air-chamber becomes a detriment; but if, as I maintain, part of the air can be withdrawn and withheld, there must be additional pressure added to the opposite surface of the plate, resulting in a more perfect adaptation to the tissues of the palate, thus still further increasing the retentive force. This needs no further remark, for Dr. Teskey undoubtedly agrees with my conclusions.

But why should there be any disagreement on the possibility of evacuating an air-chamber when the proof is so easy and convenient? Why does not Dr. Teskey do as many others as well as myself have done, experiment on his own mouth? Let him make two plates for it without teeth, and which do not come in contact with his own teeth; the one with, and the other without, an air-chamber. If he will try them both impartially, he will find that a vacuum can be formed on the one to such an extent (it is my experience) that the resultant pressure upon the tissues will be painful. Until he has made this test, he will not be in a position to decide upon the practical utility of the one method over the

other, especially since his contentions are not based upon scientific principles. "Nature abhors a vacuum," and who cannot cause a thimble to remain in contact with the tongue by withdrawing part of the air?

His article also contains several other statements which, to my mind, are contrary to the experience of the great majority of dentists.

Adhesion, he says, holds together two pieces of glass when wet and in contact. If he will put them in a chamber, and evacuate the air, he will find that with the atmospheric pressure adhesion also vanishes, and the pieces fall apart.

"What practical man," he says, "will not tell you that the greater the area of the horizontal surface (other things being equal), the more retaining force is exhibited?" He appears to mean that a perfectly flat palate will more easily retain an artificial denture than a very high and narrow arch. I can scarcely believe that that is his meaning. But he again expresses a similar idea when he says, "Why is it that V shaped arches exhibit little retaining force?" If such be the case in his experience, it must be because he does not employ an air-chamber. Other dentists report a different experience.

"Why," he asks, "do artificial dentures exhibit greater retaining force on soft than on hard palates?" In using air-chambers this is true only when a plate is first put up into position, and before it has been pressed into intimate contact with the tissues, and is due to the unyielding nature of the tissues, making it more difficult to evacuate the air-chamber. But when Dr. Teskey says sufficient air can get in to establish an equilibrium, I can merely say that, theoretically, his conclusions are wrong, and, practically, he draws upon his imagination for his facts.

Again, he says: "Why does a plate exhibit a retaining force without an air-chamber?" The answer of the "Adhesion theory" given by him is certainly very incomplete. As far as he goes, I believe all dentists will agree with him, because he merely gives the conditions. Has the other theory no answer? What an insinuation! Did ever a reputable dentist claim that plates without air-chambers exhibit no retaining force? Surely not; and surely Dr. Teskey should know it. All who use and know the benefits of air-chambers claim nothing more for them than that they increase the

retentive force that already exists by increasing the external pressure, and in conjunction making the adaptation more nearly perfect and thus still more retentive.

He asks why it is "that the retaining force does not cease when the tissues enlarge and fill the vacuum." Certainly, because from the intimate contact of the other parts of the plate with the tissues, and more or less from the contact of the chamber with the enlarged tissues that fill it, the air is precluded, and the atmospheric pressure to a greater or less extent prevents the plate from withdrawing from the palate. But why, if there is no suction, do the tissues enlarge and fill the air-chamber?

To his last question, "Why is it that V shaped arches exhibit little retaining force?" I can merely reply as before, because an air-chamber is not used. I never heard such an idea advanced, and Dr. Teskey's answer to the question is quite as amusing. He appears to labor under the impression that gravitation is not constant; that the weight of the plate depends upon the curvature of the arch, for he says: "It is because gravity is exerted at right angles to a very limited space."

In conclusion, I must take exception to his substitution of the word "adhesion" for the word "suction." It may be more euphonious, and, when used in its proper sense, less vulgar; so are many other words that would be even more inappropriate than adhesion. But is vulcanite really so very adhesive? Will it show any tendency to stick to the tongue, or to the internal or external surface of the lips or cheek, or to mucous membrane in any position or form? Will it adhere to anything that is not in itself adhesive? Try again, Dr. Teskey, and until you have found a more appropriate word than "adhesion," drop the "vulgar" word "suction," and conclude that, whether or not an air-chamber is employed, the plate is held in place by atmospheric pressure.

A Business Man on our Fees.

By X. Y. Z.

A few days ago I was obliged to extract a root of a tooth, and subsequently to give advice because of the patient's neglect, and as the gentleman, one of our thinking and far-seeing men, handed me double the fee I asked him, he remarked: "Let me give you a bit of advice in your own interest, as well as in the interest of the country. *You should double your fees.* Over the lines men who do no better service to their patients, charge two, three and four times your fees. The cost of living, and I suppose the cost of being and practising as a dentist, has largely increased. Servant girls who got \$5 a month, now get \$10 and \$12. Mechanics get double the wages they got twelve years ago. I understand that twenty years ago the dentists in the cities got \$60 for an upper set on gold or platina. Eighteen years ago I paid \$40 for my upper set of vulcanite, made in Toronto. To-day, they say, you give better sets for \$20 and \$25, while some fellows, who must be impostors, pretend to give good ones under \$10! This is all wrong. It is better, a good deal, to work for one patient who will pay you ten dollars for an operation, than for ten patients who want the same operation for a dollar each. The ten-dollar patient will send you others like himself; but the ten cheap patients may send you others who will try to beat you down to fifty cents. People who can afford to pay the dentist to-day can easier now pay him the double fee than they could pay the single fee ten years ago; and it is a bad sign, in a growing country like Canada, when professional men lower their fees. Of course, there are circumstances when you may have to make reductions; but take my advice, and raise your own fees and urge your brethren to do the same. We, your patients, will, I am sure, get better served. No man works his best unless he sees success and a competence before him."

I was very much struck with the clear, business-like arguments of my patient, and I hope that when we have a code of ethics, no man who advertises cheapness as his leading recommendation, will be allowed membership in our societies. Go where you will in Canada, the United States or Great Britain, the "cheap" dentist is, without exception, a vulgar, and generally a very filthy quack.

Dentists' Supplementary Chair.

By A. A. SMITH, L.D.S., Cornwall, Ont.

There has lately been brought to my notice an exceedingly useful chair, for hasty examinations of the teeth and cases of simple extraction, which present themselves so frequently, when our regular operating chairs are occupied.

This chair—which, by the way, is manufactured in Parkhill, Ontario, and sold by Mr. James A. Loudon, Cornwall, Ontario—is simple and durable in construction, light and convenient to handle, and is automatic in all its movements, thus enabling the patient to sit, recline, or lie prostrate in it at will. It is an excellent chair for receiving ether or chloroform patients after operations, thus relieving the operating chair at once and saving time; while, being mounted on strong castors, it can be easily moved about with the patient in any position.

I have had one of these chairs for some time, and have found it very convenient at my house, for making examinations after office hours, when such were required.

The general usefulness and convenience of this chair, combined with its low price, prompts me to bring it thus before the dental profession of Canada, knowing that any dentist securing one, will endorse all I have said in its favor, and will recognize that a long-felt want has been supplied.

Dental Dots Distilled.

By D. V. BEACOCK, L.D.S., Brockville, Ont.

Accuracy first, then speed; intelligence first of what should be done, then skill in the doing; this should be the order, and if followed will bring success.

To cause plaster to harden quickly, sugar is as good as salt and even better to increase its strength.

It is not allowable to immediately destroy exposed pulps, when by a little patience and intelligence they might be saved alive. If

you can't do such work, be honest enough to turn the patient over to a dentist who can.

Because a first permanent molar has an extensive cavity is no justification for its extraction, the plea that the patient or the parent will not bear the expense of filling, is not sufficient for its loss ; nothing justifies its extraction but that it is beyond redemption.

It is not honorable to extract a tooth simply because a patient or patient's guardian demands it. They may be honestly deceived in the importance of the tooth, or which is worse, may prefer extraction because it is cheaper. It is for the dentist to be the educator of the ignorant, and a determined opposer of the penurious.

Because a tooth is loose and denuded of gum or even painful, with exudation of pus about the neck, is not sufficient cause for extraction. A dentist nowadays should be intelligent enough to treat such teeth.

A brass wire coiled spring, similar to a mattress spring, loosely fitted inside your vulcanizer, is a handy thing to keep the flasks out of the water while vulcanizing.

In repairing cases two, or even three pieces, can be put in one flask without packing, to save time. From six to nine cases can be put into a three-flask vulcanizer, and all done without the trouble and inconvenience of waxing up the machine. Sometimes a partial case can be made from beginning to end without the trouble of waxing up, etc., in the same way.

A piece of fresh rubber tubing slipped over the duplex springs of the Shaw engine will strengthen them and prevent breaking, etc.

In the same way rubber tubing, drawn over the handles of your excavators, makes them much easier to handle.

Rubber files can be made to do good service after being thrown by as useless. Put them in the fire till red hot all over, drop them end first into a pail of water, dry them and brush them with a file cleaner or stiff brush.

Burnishers dipped in vaseline, won't stick to gutta percha when hot, in filling cavities.

Oil of cassia has a greater range of antiseptic power than carbolic acid and much safer.

Oil of eucalyptus is good to use in root-filling when using gutta percha.

A Tuerk or Baccus water motor is a valuable help to run dental lathes, engines, etc., wherever water works are available. I have used one for years.

Dr. Rollins says that beta-naphthol makes one of the best root-fillers in his hands.

Ditcham's germicide is one of the best, if not the very best, I have ever used, although rather expensive.

Selections.

Shock, in Relation to Dental Operations.

By DR. JAMES TRUMAN, D.D.S.

(Read before the Odontological Society of Pennsylvania.)

It is well-known that death may come to the individual, and no trace of antecedent injury be manifest. Depression to the general circulating system may be apparent, and the medical attendant be wholly at a loss to define the cause. Mental emotion may produce changes at once rapid in its effects, and leaving results of a character that time may scarcely efface. The true definition of shock may be termed a "sudden depression of the vital powers resulting from an injury, or an impression made on the nervous system, or by fright; sudden and overpowering mental emotion." (Black.) While death may result from such a depression of vital powers, this extreme result is by no means always the case; but that the changed condition of the circulation may lead up to grave symptoms is clear, when it is understood that the delayed phenomena may be more serious than would be suggested at the earlier and more active stage of the shock.

To judge of the subject intelligently, the origin of collapse will be considered as briefly as may be consistent with the importance of the subject. Shock, or collapse, must be regarded as arising from an altered condition of the circulation produced by direct or reflex action on the nerve-centres, and without leaving any evidences of "change in the tissues; but, while this is unquestionably the case in some instances, there may be in others post-mortem evidences of morbid effects. The view that shock is always dependent on

an altered state of the nerves has been combated, and Jordan has shown that potassium cyanide, by acting directly on the cardiac muscular fibre, and by impairing its contractility, gives rise to those numerous secondary effects of shock which depend on arrested or imperfect supply of arterial blood." The condition of knowledge in regard to the action of the vaso-motor system of nerves is, perhaps, too imperfect to assign positive reasons or to argue the question absolutely from facts. Sufficient is known, however, to form a basis of reasonable inference for much of the phenomena observed. These so certainly point to nerve influence circulation that the conclusion is inevitable—that the impulse proceeds from a centre of nerve action, and the circulation is changed by a direct loss of tone in the vessels.

The generally recognized view now is that the circulation is affected by direct irritation and by reflex action, and that "special vaso-motor nerve-centres exist for the various vascular provinces." (Wagner.) "Section of a vascular nerve will produce, therefore, a flow of blood to the parts to which it is distributed ; that excitation by the interrupted current, or by mechanical means, produces constriction of the minute arteries ; that excitation of a sensory nerve produces increased activity of the capillary circulation." (Simon.) The heart will continue to act after the removal of the nerve-centres, and hence is not directly dependent on these, and yet it is clear that mental emotions have a direct and powerful influence on this organ sufficient, in many cases, to produce death. True shock, as defined by some writers, must be limited to its "immediate production," while others attempt to classify it as "transitory, delayed, protracted, and insidious."

In the slighter degrees of collapse, the patient may present no marked symptoms, makes no complaint, and experiences no pain. The extremities are cold, face exhibiting a pinched expression. From this it may pass to the extreme form, with pallor on the surface, lips pale and bloodless, motionless, cold over the body, hardly perceptible pulse, great weakness, oppression, dizziness, nausea, confused perceptions, and respiratory movements feeble. These symptoms are not always confined to severe cases of physical injury, or to excessive mental emotion ; but may be manifest after most trivial injuries, the effect being out of all proportion to the cause.

The relation which the phenomena of shock bear to dental operations may not be clear to the average observer ; but to my mind they embody much subject for serious thought, and ought to lead to a clearer apprehension of our duty as practitioners.

While the evidence is very far from absolute that the conditions we are familiar with are dependent for a solution on shock, yet they are so closely allied to the phenomena that one is naturally drawn to inferences and suggestions. It is unnecessary to confine our observations to the extreme cases of collapse, for the symptoms will be variable. The mental emotion caused by the sudden loss of near and dear friends may not amount to shock in the extreme sense ; but who has not observed the long periods of weakness, the lack of mental force, the general loss of tone in the circulation, which may take months, and even years, to recover from ? Whether this be ascribed to continued shock or to other pathological sequences, it certainly had its origin in a deep impression made on the nervous system, and, consequently, in a loss of controlling power. My observations and conclusions lead me to the opinion that these phenomena must be ascribed to a modified form of collapse. The mental strain produced in times of great public excitement—the effect on a merchant who has ended a carefully ordered life with failure in business—the rapid decline of those who have commanded large bodies of men in war through many battles, most noticeable since the Rebellion—these all showing a nervous strain and producing symptoms and lesions which must be ascribed to the insidious working of nerve influence.

It seems to me impossible to avoid the conclusion that many serious conditions, now unexplained, must be attributed to this cause ; at least, many more than are now generally recognized. What is weariness but a similar effect ? We call it shock when the impression is a powerful one ; but is not this only a form of insidious impression, an action on the nerve-centres in response to peripheral sensations ? Make this an overstrain, and, if repeated and repeated, the tone of the vessels is lost altogether, and the individual succumbs. This may not be collapse in a scientific view ; but is certainly an approach, and closely allied to it in the broader sense that the greater includes the less, and cannot be explained intelligently in any other way.

To apply these thoughts to dental operations and dental operators

is a natural sequence. Dr. Black, in "The System of Dentistry," has made most of these facts familiar to you, and his views on the overtaxing of patients should be carefully read and pondered. He illustrates the importance of attending to this by a case in his own practice, and, as this bears directly on the subject, I quote it in full :

"A young lady of eighteen came from a distance by appointment to have various teeth filled. On examination it was found there were two exposed pulps, besides other smaller cavities. Both the young lady and her parents insisted that all should be done that day if it were possible. The operations were proceeded with, and everything without a murmur. My patient was a fine specimen of physical development, and I soon found she prided herself on her powers of endurance. The pulps were, at her urgent request, removed directly with the broach, and the filling proceeded with. After three hours of continuous operation, the patient was discharged for two hours' rest. She returned promptly, but something in her appearance arrested my attention as not being just right; yet, in answer to questions, she said she felt perfectly well, only a little tired. The operations were resumed, and all went well at first; but after an hour, the latter part of which had been occupied in the excavation of a very sensitive cavity, I found the pulse had become very compressible, and other evidences of shock were becoming apparent. Gutta-percha fillings were placed in the cavities excavated, and operations suspended. I found it necessary to assist her to a couch. After two hours in the recumbent posture she seemed better, and was taken to the train by her parents, and I saw her no more. I afterward learned from her mother that her condition became much worse *en route* home, and that for four or five days she was in a 'stupid condition,' and after this she passed into a nervous fever, which continued for several months. Up to the time I last heard from her, four years after the incident, she had been an invalid."

We all know of cases, and by no means infrequent, of persons exhibiting great weakness and depression after prolonged dental operations. Indeed, so common has this been with me, that for years I have been unwilling to extend the sitting over two hours, and then to insist on an intermission of several days. We, as dentists, interested in the operation at hand, can scarcely realize the nervous tension to which our patients are subjected. This

mental and physical strain is sure to produce a condition of collapse, modified in extent though it may be, still, by constant repetition, may produce results of a grave character. The very long operations of from six to seven hours are, it is hoped, passed by. The craze for enormous gold operations has not only in the past depleted the purses of our patients, but has had equally injurious results on the circulatory system. While such operations may truthfully be defended on the score of value to the teeth, they cannot be recommended in view of the possibility of permanent injury to the individual.

Surgical shock may meet us directly in cases of extraction. The shortness of this operation may lead some to regard it as of little moment ; but there is probably no operation that the average mind will not more calmly consider than this. A few favored individuals, blessed with very "strong nerves," can sit down and have a tooth out with a nonchalance surprising ; but these are exceptional. With most of us it is a great mental strain in advance, and a great shock during the operation, and the consequent depression is fully in accord with what we know of the phenomena accompanying more important surgical cases. It has been too much the custom in the past to remove teeth as long as the "patient will stand it ;" or, in other words, till the sufferer refuses longer to allow the forceps to enter the mouth. Hence, it is not unusual for persons to have many teeth removed at one sitting, and dentists have been known to pride themselves on their agility in handling many teeth in a given time. If my views be considered as having any force, are not such operators sometimes guilty of malpractice? They certainly have taken risks that may reach beyond the limits of endurance, and, should untoward results follow, they are to blame. I presume all will recall cases, in their ignorance—and we have all been ignorantly guilty in this—where, after many extractions, the patient has been confined to bed for days with all the symptoms I have detailed. It was from such experiences that I was led in years past to refuse to extract more than six teeth at one sitting. This I regard as the only safe practice, from this point of view as well as from that other, more remote, liability to hemorrhage. In these minor surgical operations we are not justified in jeopardizing the health and nervous energy of our patients. Caution is justifiable prudence.—*Items of Interest.*

Limitations in Treatment and Filling of Roots.

By J. A. BAZIN, L.D.S., Montreal, Canada.

(Read before the Union Meeting, Springfield, Mass, October, 1889.)

The numerous articles that have appeared in our dental journals for some time past upon "Root Treatment and Filling" have caused me to doubt my experience and observation, and also with great diffidence to question the statements and almost dogmatic assertions of some of the writers.

More recently has this been the case in reading an article and discussion reported in the *International Dental Journal* by Professor James Truman, wherein he presents such a picture of almost complete perfection that I am forced to ask myself, as well as my associates, Can he have the same kind of teeth and the same order of beings to deal with as come into our hands? Believing that he has, and giving him, and all others who claim such full success in this branch of operations, credit for far greater deftness in manipulation and skill than I possess, yet the effect upon me has been to take up this subject for consideration, and try and deal with it in the light of the, perhaps, limited experience and tests that I am able to offer. The first proposition I shall try to establish is that it is far from being commonly possible to extirpate all the contents of the pulp-canals of all the three-rooted teeth while in their normal position in the human jaws. Nature is exceedingly fickle in the anatomy of the roots of the teeth, and I might go further, and say in all the details of the human frame, but will only deal at this time with one special subject. In proof, I exhibit a few teeth, not selected, but in the order of their extraction, mostly of first molars, from patients under twelve years of age, also a few specimens presenting marked peculiarities in root formation, but whose crowns are of normal type.

Of the first group I have removed the crowns, so as to have the freest access to the bifurcations of the canals that the drills and instruments might have no hindrance in passing to and through the foramen. Of course, no such presentation would occur in an ordinary operation in the mouth.

The results of my attempts to open these canals have been the breaking of drills in a few, puncturing at the side of the root in more, and succeeding in but a very small number of cases in passing at the proper point, and when doing so the *debris* would almost always be left outside in what would have been the "apical space." Another circumstance in connection with this drilling of the roots, which to me seems very important, and which I wish to emphasize, is that the amount of *heat* involved in penetrating any of the smaller canals must do injury to the connective tissue, as it often forced me to let go the tooth with my fingers, although the engine was moving at an exceedingly slow speed. If the drill chips accumulated in the least, *heat* was the result, and these chips must be removed in some way to allow the work to go on. Till the foramen is pierced, this *debris* can only be lifted out by the drill, and that imperfectly.

You will please notice that several of these lower molars, although being from such young people, have exceedingly flat roots and very minute canals, with a division in one root into two distinct branches of a very small diameter and obscure entrance from the pulp-chamber.

No instrument can penetrate these canals, and to attempt enlarging them is so difficult that the larger part of the crown must be sacrificed, and if much increase of diameter is attempted, penetration at the side of the root is sure to occur.

My second proposition is that nature is as fickle in a physiological and pathological sense, which I shall endeavor to establish by citations from my own practice.

1. A young lady when about fourteen years of age fell upon the ice and struck with great force upon the superior central incisors, the dentine became suffused with blood pigment, and when the case came into my hands, about three years later, both teeth were blue-black. After attempting to bleach, I excised the discolored crowns, and replaced them with Logan crowns. On doing this the left central canal was found free to apex, but the right was solidly filled with secondary dentine as far as I had need to drill. Neither tooth had given any trouble yet. Nature had been capricious.

2. A young man, about twenty, robust, and a noted gymnast, came to me with swollen face and left eye almost closed. On examination I found left central, a perfectly sound tooth as far as decay

was concerned, abscessed and discharging pus copiously from numerous openings. The history of the case is as follows : He was employed in a bank, and was directed to prepare a large amount of silver coin for export, and in tying the parcels kept the end of the string between his teeth. The three-sided form of the package doubtless caused repeated jerks and jarring, the result upon the upper tooth being as I describe, the lower ones not being affected.

3. A lady in middle life presented a right superior molar, which had a fistula on the buccal side, with no cavity or discoloration observable. After she had borne the annoyance for some time, I removed the tooth, and, upon examination, found complete ossification of the pulp and canals. (The tooth is now the property of Dr. Barrett, of Buffalo, who says it is the finest specimen he has ever seen.) Upon inquiry, I found this lady had been in the constant habit of cracking nuts and plum-pits upon every opportunity.

Again, a lower first molar was filled by Dr. Elliot, of this city, prior to 1855. I refilled it with the same material, amalgam, a few years after ; the pulp was then dead, as I presume it was at the first operation. No special effort was made to go beyond the pulp-chamber in cleaning or filling, creosote being applied. From that time till 1868 perfect peace reigned supreme.

In February of that year the patient became seriously ill in giving birth to a child without proper attendance, and very serious hemorrhage was the result, which was arrested by compress and plug. Within forty-eight hours the tooth described had the acute symptoms of alveolar abscess taking the usual course. (In this connection the question might be asked, Was this result one of those cases referred to by Dr. G. W. Black, where bacterial germs enter the circulation at a remote part and find fit conditions for multiplication ?) Is it correct to say that that filling was a success by reason of the fact that for more than ten years it remained a useful member ? I might weary you with additional evidence to uphold my proposition.

Cases are common of pivot teeth on the hickory peg, where the only treatment usually given was that of removing the pulp with a broach, enlarging the canal to the desired size, and then sending peg and crown to its resting-place to abide in peace for ten, twenty and even thirty years. Not long since I removed four that had

been in place for thirty-two years. Now, if this evidence is accepted, what ought the conclusion to be? Are there not limitations to our efforts to remove all the pulp from the roots?

I think it may safely be affirmed that only the single-rooted teeth can be well cleaned and filled, and even then much will depend on the locality of the cavity.

If it is declared *absolutely necessary*, the root to its apex *must* be cleaned and filled to insure success, but even with this care many failures are inevitable.

Passing beyond the single-rooted teeth, difficulties multiply rapidly, such as flattened and bifurcated roots, tortuous, and curved in very minute points. If the cavities occur on posterior or labial face, the sacrifice of a large part of the crown, with a corresponding weakness, must be the result to even reach the *entrances* to the canals. Often we have presented the second and third lower molars with pulp exposure, the cavity being below the margin of the gum either on the mesial or distal face, with a form of jaw that prevents a wide opening of the mouth, and on the superior jaw cavities of the lingual side.

Do the writers of the articles referred to intend to convey the idea that they remove all the *debris* to the apex of *each* of the several roots, and carry gold or cotton to their extremities?

Professor Truman, writing of the treatment of roots, uses these words: "The canal is thoroughly injected with peroxide of hydrogen as preliminary; this powerful oxidizer of organic matter prevents possible injury in cleaning out the *debris* of pulp tissue." Again, "The instruments used are passed through the alcohol flame," the "canal is then thoroughly washed with a certain solution, and when all odor of putrefaction ceases, the canal is generally considered to be ready for filling." Further on he says, "The canal is first closed at the apical foramen, at the shoulder, with either a small piece of cotton wet with carbolic, or better, if possible, with a small piece of gutta percha, and chloride of zinc is then passed into the canal, to remain for several days." In the discussion of the paper some statements were made which, I think, would be modified under a cross-examination. I quote, and I believe fairly, for it would make this paper too long to give full extracts. Dr. L. G. Perry commends the paper in every particular. He uses gutta percha points because it is possible to carry them to

the end of the roots, and questions if it is not true, as claimed by Dr. Jack, that "the very small point of the canal can be filled as accurately with gold as with any other known means." Dr. J. Head "fills roots with cotton," but thinks there always is a strong probability that in molars the outer (?) portion of the apical foramen is unfilled. (Dr. Head seems to be the only one present at that discussion that hints at such possibilities.) Since this paper was prepared Dr. Head has an article in the October number of the *International Dental Journal* referring to this same paper and discussion, in which he suggests that if they would perform the operations in teeth embedded in plaster and have them dissected afterwards they would, probably, be convinced of the truth of his statements.

Dr. Dwinelle is very emphatic; he "fills the roots thoroughly, and usually with gold." In fact, with hardly an exception, it seems to be unquestioned by the members present that Professor Truman's position is tenable. As I said at the beginning of this paper, I feel great delicacy in criticising such a body of leaders in dentistry, whose papers and opinions are read with so much interest, but will not such statements mislead and deter our young and even some of our older members in their attempts to deal justly by themselves and towards their patients? When failure to save a tooth, after all their painstaking, meets them, will not the question arise, Who is to be compensated, patient or practitioner?

The conclusion of the matter seems to me to be, that averages rule in this, as in many other things. We can only do what we can with each individual case, cultivating our discernment so as to *know* the best for each; remembering that there are the conditions of locality, as well as of disease, that will render our most intelligent and earnest efforts only failures, or, at best, but temporary successes, since circumstances may render our work valueless in the weeks that are to follow. Another matter that seems to me to have its objectionable feature is the number of agents recommended for use in septic conditions, with the maze of doubt as to which of the twenty-five or thirty will be the best; the changing treatment that must arise if the future does not bring the expected result; and when the effect desired does come, to which shall credit be given; these all seem to declare that it were far better to have some definite series of experiments made. My experiments seem

to demonstrate that it is not often that the *debris* of the drill can be blown or washed out of the canals if the apex is not well open, and if open much of the contents will pass beyond the root, but in such cases septic treatment ought to correct any injurious effect. I indulge the hope that what I have here written may be received in the kind spirit in which it is given, and that each one may be stimulated to increase his successful averages.

Since writing the above article I have had some tubes prepared, partly filled with bone dust, which I would like to see washed out or blown away by any of the means or instruments now used in the mouth. These tubes present a smoother and more perfect surface than those made in the canals, and if these cannot be cleaned, how can the teeth?—*International Dental Journal*.

The Dentist's Assets.

By PROF. C. M. WRIGHT.

The dentist's assets amount to a few hundreds, or, at best, a few thousands of dollars, while his working capital before death could be easily and fairly estimated as a non-transferable capital of many thousands of dollars. The reputed skill, the moral integrity, the business capacity, the persistent efforts, the "personal practice" of the man in his prime are practically worth, in some cases, hundreds of thousands of dollars, placed at interest at six per cent. per annum. The man owning \$100,000 in money frequently works hard to make this money earn for him an income of six per cent., or \$6,000. The dentist earning \$6,000 from practice is then, in one sense, worth to his family \$100,000. Twelve thousand a year at six per cent. equals \$200,000.

But the \$200,000 is only a life interest. It is like a gas well, which is profitable as long as it flows, and the flow may stop or decrease in quantity at any time. Another point in regard to a dentist's capital (shall we say floating capital?) is, that it is at its maximum for about a quarter of a century at best, or say from thirty to sixty years of age. Few men before thirty years of age have an income of much significance, and by sixty years of age the

work of the average dentist, as far as an income-gatherer, is over. So that the material wealth of the dentist consists of an *income of money* for, let us say, thirty years, which income during this period is sufficient for himself and family, enabling them to maintain a home establishment, affording great comfort and a degree of what we may call quiet elegance. The most successful and business-like dentists, by the exercise of some financial skill and considerable prudence in the way of expenditure during the period of the thirty years of paying practice, become real owners of the homes of their families ; and I use the term *real* owners, because of the frequent and uncomfortable mortgages casting clouds over the clear title of many of these elegant homes believed to be owned by dentists in good practice.

Besides the good income—that is, the income which affords the comforts and elegances of the nineteenth century, in a scale of society as far removed from the lowest as it is from the highest grades—the successful dentist is generally the possessor of life insurance policies valued at from \$5,000 to \$30,000 or \$40,000, which his income permits him to maintain, and which form the most important part of the effects of the dead dentist who has been a successful and prudent dentist during his years of activity. This is all that I can say in regard to the material wealth of the dentist.

—*Dental Register*.

Our Canadian College.

The sixteenth session of the Toronto Dental College was opened on Tuesday evening, October 7th, with about sixty students in attendance ; twenty-five being seniors and thirty-five juniors. Dr. Willmott delivered the opening lecture, and gave a short history of the provincial laws relating to dentistry, and drew a comparison between them and those prevailing in the United States. He pointed out the rapid advance made by the dental profession in this Province, and how it had been brought about, and concluded by urging upon the students the importance of thoroughly mastering the principles of dental science before entering upon the practice of their profession, and the necessity of a strict adherence to honorable and professional conduct ever afterwards.

The curriculum for this year differs slightly from that of former years, the principal change being in reference to the practical work necessary for examination. Hereafter every freshman, before presenting himself for his intermediate examination, must submit a whole upper or lower set of single gum teeth, mounted on a swaged metal plate, soldered with hard solder, and not plated or gilded; also a Richmond metal crown, and a Richmond crown with porcelain face, both fitted upon but not cemented to the root of a tooth. This work shall all be done in the laboratory of the College, under the supervision of the Demonstrator, and as soon as completed shall be handed to him to be sealed up in an envelope, marked with a suitable number or word. When the Board of Examiners meets, these sealed envelopes will be handed to the Examiner in Dental Prosthetics. If in any case the work is not satisfactory, the candidate shall take this examination over again in his final year. The advantages of this course are apparent. The student will master the practical operations of modern mechanical dentistry during the first session, leaving him the second to devote to operations in the mouth.

Whether or not it will lighten the labors of the senior students, who frequently claim they are overworked, will depend upon the rest of the course, but certainly it will insure the juniors being kept busy. We think, too, it will call attention to the class of work taught in our Canadian College, and perhaps discount the statement so frequently made by quasi-Americans, that students do not get as good a practical training in Toronto as they do in the American colleges. We know of no American college where the student is required to pass anything like as rigorous an examination as this the first year—if, indeed, he is required to pass any at all; and when it is remembered that before taking his final year the student must spend twenty-six months, *exclusive* of the time spent at college, in the office of some licentiate, during no part of which can he be engaged in any other occupation or calling, it will be seen that if he had any brains to start with, he must be pretty well up in his practical work. And right in the matter of brains is where we get the start of the American colleges. While we require matriculation in arts or medicine at some Canadian university, for matriculation in dentistry, most of them are perfectly satisfied with the ability to read and write the American language. We know some-

thing of the ability of some of the students attracted by this ease of matriculation, as we manage to export a few every year, and as our standard rises the number will no doubt increase, unless, perchance, a future Congress adds a section to the McKinley Bill covering the case. We do not wish to be understood as saying anything against the work done in the American colleges. The dental colleges of the United States have done a grand work, which is shown by the fact that American dentists are at the head of the profession to-day. But we do wish to emphasize the fact that in the careful selection of its students, in thoroughness of training, and in strictness and severity of examinations, our own college is the peer of any in the world.

Legislation in Canada.

The following two Acts of Incorporation, which should have appeared in a former number, were misplaced, and only lately came to light. We apologize to our friends in British Columbia and the North-West Territories.

An Act to Regulate the Practice of Dentistry in the Province of British Columbia.

[Assented to, 6th April, 1886.]

Whereas the profession of dentistry is extensively practised in Europe, the United States and the Dominion of Canada; and whereas the said profession of dentistry is protected by law in Europe, the greater portion of the United States and in parts of Canada; and whereas it is expedient for the protection of the public that there should, by enactment, be established a certain standard of qualification required of each practitioner of the said profession or calling, and that certain privileges and protection should be afforded to such practitioners:

Therefore, Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of British Columbia, enacts as follows:

1. That it shall be unlawful for any person to practise, or attempt to practise the profession of dentistry or dental surgery in the

Province of British Columbia without having first received a diploma from the faculty of some reputable dental college, school or university department duly authorized by the laws of Great Britain and its dependencies, or the laws of some foreign government, and in which college, school or university department there was at the issuance of such diploma annually delivered a full course of lectures and instructions in dentistry or dental surgery, and without having had issued to him a certificate under the provisions of this Act: Provided, that nothing in section 1 of this Act shall apply to persons who have been three months in actual practice in this Province previous to the passage of this Act, except as hereinafter provided, and nothing in this Act shall be so construed as to prevent physicians, surgeons or others from extracting teeth.

2. A Board of Examiners, consisting of three practising dentists, residents of this Province, is hereby created, who shall issue certificates to persons in the practice of dentistry or dental surgery in this Province who have been three months in actual practice in said Province previous to the passage of this Act; and also to decide upon the validity and sufficiency of character of such diplomas as may be subsequently presented for registration as hereinafter provided.

3. The members of said Board of Examiners shall be appointed by the Lieutenant-Governor in Council upon the passage of this Act, and shall serve for a term of three years, excepting that the members of the Board first appointed shall hold their offices as follows: One for three years; one for two years; one for one year, respectively, and until their successors are duly appointed.

In case of any vacancy occurring in said Board, such vacancy shall be filled by the Lieutenant-Governor in Council from those in actual practice in the said Province.

4. The said Board of Examiners shall keep a record in which shall be registered the names, residences or places of business of all persons authorized under this Act to practise dentistry in this Province. The said Board shall elect from its members a president and a secretary, and shall meet at least once a year, and whenever applications for certificates shall be made. A majority of the members of said Board shall constitute a quorum.

5. Every person engaged in the practice of dentistry within this Province at the time of the passage of this Act shall, within three

months thereafter, cause his name and residence and place of business to be registered with the said Board of Examiners, upon which said board shall issue to such person a certificate duly signed by a majority of the members of said Board, and which certificate shall entitle the person to whom it is issued to all the rights and privileges set forth in this Act.

6. To provide for the proper enforcement of this Act, the said Board of Examiners shall be entitled to the following fees (to wit): For each certificate issued to persons engaged in the practice of dentistry in this Province at the time of the passage of this Act, the sum of ten dollars; for each certificate issued to persons not engaged in the practice of dentistry at the time of the passage of this Act, the sum of twenty-five dollars.

7. There shall be allowed and paid to each of the members of the said Board of Examiners such fees for attendance, in no case to exceed ten dollars per day, and such reasonable travelling expenses as the said Board shall allow from time to time. Said expenses shall be paid out of the fees and penalties received by the said Board under the provisions of this Act.

8. All moneys in excess of necessary expenses shall be held by the secretary of said Board as a special fund for meeting the expenses of said Board, he giving such bonds as the Board may from time to time direct.

9. The said Board at its first meeting, and from time to time thereafter, shall make such rules, regulations and by-laws, not inconsistent with the provisions of this Act, as may be necessary for the proper and better guidance of the said Board, which rules, regulations and by-laws shall first be published for one month in the *British Columbia Gazette*, and in one or more newspapers circulating in the Province. Any or all of such rules, regulations and by-laws shall be liable to be cancelled and annulled by an order of the Lieutenant-Governor in Council.

10. The secretary of said Board shall, on or before the fifteenth day of January in each and every year, enclose to the Provincial Secretary an annual report of its proceedings, together with an account of all moneys received and disbursed by said Board of Examiners; also a list of the names of all persons to whom certificates have been granted, and the qualifications therefor, and such lists shall be published in the *Gazette*.

11. If any person, after the period of three months after the passage of this Act, not holding a valid certificate, practises the said profession or calling of dentistry or dental surgery, or wilfully and falsely pretends to hold a certificate under this Act, or takes or uses any name, addition or description implying that he is duly authorized to practise the profession or calling of dentistry or dental surgery, he shall, upon a summary conviction thereof before any justice of the peace, for any and every such offence pay a penalty not exceeding one hundred dollars nor less than twenty-five dollars, and the half of any such penalty shall be paid to the Board of Examiners ; and it is further provided that no person who is not qualified under the provisions of this Act shall recover in any court of law for any work done or any materials used by him in the ordinary work of a dentist.

12. Any British subject being a resident of this Province (not entitled to the privileges and benefits of this Act under section 1) desirous of entering the profession or calling of dentistry, shall be apprenticed to a practitioner duly qualified under this Act for a period of three years, and shall file his articles of apprenticeship with the Secretary within one calendar month after the said articles have been executed.

13. Any such person having been so apprenticed as aforesaid shall, at the completion of the term of his apprenticeship, and upon the production to the secretary of satisfactory evidence of his having served his said apprenticeship, and of his good moral character, be entitled to be examined as to his fitness to practise the profession or calling of dentistry before the Board of Examiners appointed under this Act, and shall, upon passing such examination to the satisfaction of the said Board, receive a certificate, upon the payment of a fee of ten dollars, which shall entitle him to all the rights and privileges of this Act.

An Ordinance to regulate the practice of Dentistry in the North-West Territories.

The Lieutenant-Governor, by and with the advice and consent of the Legislative Assembly, enacts as follows :

1. That no person shall practise the profession of dentistry or dental surgery in the North-West Territories without having first

received a certificate as hereinafter provided, entitling him to practise dentistry or dental surgery.

2. That such certificate shall be issued by the Clerk of the Legislative Assembly, upon production to him of a diploma of graduation in dental surgery from the faculty of any Canadian dental college, or the faculty of any Canadian university having a special dental department, or from any such institution duly authorized by the laws of Great Britain, or any of her dependencies ; or a license to practise dental surgery issued by any of the Provinces of the Dominion of Canada, or a diploma or license from a foreign dental institution, which required at the time of issue of such diploma or license, attendance at a regular course of lectures, and an apprenticeship of not less than two and one-half years ; or who has been in regular practice in the North-West Territories as a dentist or dental surgeon for a period of one month immediately preceding the passing of this Ordinance, and it shall be the duty of the persons claiming to be entitled to the certificate required by this section, to produce to the said clerk evidence, satisfactory to him, of his being entitled thereto.

Provided always, that nothing herein contained shall be construed to require physicians, surgeons, or others to take out such certificate for the purpose of qualifying them to extract teeth.

3. That before any such certificate is granted the applicant shall pay to the general revenue fund of the Territories, the sum of \$25.00, unless he is a person who, at present and for one month immediately preceding the passing hereof, has been in the actual practice of dentistry and dental surgery in the North-West Territories, and in such case he shall pay into said fund the sum of \$5.00.

4. After the period of six months from the passing of this Ordinance, any person, not holding a valid certificate issued by the said clerk as aforesaid, who practises dentistry or dental surgery, except extracting teeth, shall be guilty of an infraction of this Ordinance; and, upon conviction by any justice of the peace within the Territories in a summary manner, pay a fine not less than \$20.00 nor more than \$100.00, in the discretion of said justice, and costs.

5. That no person who has not received the certificate required by this Ordinance shall recover in any court of law any fees or money for any materials provided by him in the practice of dentistry or dental surgery, except for extracting teeth.

Editorial.

"The Kicker."

This is not a new dental engine. It is an ancient and perennial human being, and doubtless, like the mosquito, is designed for some wise purpose once beyond human ken. When the first Dental Journal and College were proposed in Baltimore, he was not only discovered there, but in every State of the American Union, and there are lineal descendants from Maine to California, who still disbelieve in journalism and education. If the kicker had his way in Canada, instead of organized means of education, we should find stable-boys and jewellers jumping from the curry-comb and the bench into the surgery at one bound, after perhaps six weeks' training. The kicker, as a rule, who condemns education because it is not equal to the very best older and more populous countries supply, is well aware that he himself is unqualified to improve it, and the impracticable suggestions he ever ventures to make only prove that he is more animated by jealousy or ignorance than any idea of self-sacrifice or sincerity. The kicker has rarely, if ever, distinguished himself by self-sacrifice. He is as lavish in unreasonable criticism as he is niggardly of his time or money, and with every thought and action it is "*Aut Cæsar, aut nullus.*" Yet when he is put into Cæsar's place, who ever knew the kicker to do more than kick? There may be a great hidden purpose in the creation of the kicker. But supposing that kickers would only become as generous and loyal as they are carping; supposing they would kick with the best efforts leaders can make, instead of against them; what a difference it would make if they would lend their energies for development instead of for destruction, as builders instead of as iconoclasts. As a respected judge in Hamilton once said to the late Dr. Chittenden: "You dentists are good pullers. What a great body you'd be if you'd all pull together." Now we believe we have discovered the object of the kicker's creation. He is designed to help, not to hinder. He is intended to make, not to mar. The only trouble is that he has been kicking the wrong way. If he kicks fair and straight, the object of his creation will be splendidly fulfilled. Of course, there may be abnormal creations,

who kick just from pure "cussedness," and who are like the old Scotch elder, who, when asked why he sought to be elected on a committee, as he couldn't make a speech, replied, "Weel, I can object."

Fair Play for this Journal.

When the editor of this journal, in the enthusiasm and ignorance of professional hobbledohoyhood, ventured to become the founder of dental journalism in Canada, he never stopped to reflect that not only were there a multitude of rivals seeking subscribers, but that these rivals, without an exception, had the financial and business backing of dental depots. The result was that at the end of the first volume of the CANADA JOURNAL OF DENTAL SCIENCE, the writer had bought a lot of experience at a loss of about seven hundred dollars. Almost everybody to whom the Journal was regularly sent each month, kept it. But only seventy-six paid their subscriptions. This did not deter from future attempts; and when the last volume was finished—though the last two volumes were financially successful—the profession was in debt to the Journal in the nice little sum of twelve hundred dollars. No special attempt was made to collect this.

The DOMINION DENTAL JOURNAL is published by a gentleman in Toronto who has both the capital and the experience to make it successful, but he does not propose to present it gratuitously to its readers. The many friendly and honorable men who promptly remit their subscriptions ought not to pay for the forgetful; and it is only fair to remind delinquents that this number completes two volumes, for which a good many have not yet paid a cent, and who have regularly received it.

One of our old friends in the depot business has a personal objection to this Journal, because he thinks a business rival is favored; but he must admit that he has equal access to the advertising pages, if he chooses to pay equal terms; and that neither directly nor indirectly has the Journal at any time shown the least favor, or even mentioned the name of the rival depot, excepting in common with other advertisers in the advertising pages. Complaints have repeatedly been sent to us that certain agents of Canadian depots have done their best to disparage this Journal; and several declarations have been made that they absolutely refused to receive

subscriptions, and attempted to divert them to Journals across the lines. The publisher is in possession of proofs that would make very unprofitable litigation for one or two of these parties, and a leading Toronto barrister urged him to make use of it, "as one of the best advertisements the Journal could secure."

These gentlemen depend exclusively upon the Canadian profession for their business, and if they do not see fit to make use of the advertising pages, they must at least not attempt to damage its circulation. We thank our friends who have sent us information. If a Canadian Journal is not entitled to Canadian support, neither is a Canadian depot. This Journal is as open to one dealer as another on equal terms. Nobody can conduct a journal to satisfy everybody; but all we ask is fair play. And we shall get it, even if we have to fight for it in the Courts.

To Contributors, Exchanges, and Publishers.

Several letters, exchanges and books for review have been lost, owing chiefly to the fact that they have not been sent to the editor at Montreal. Some one has to do the work of editor-in-chief, and we would thank contributors, exchanges and publishers to direct their material to the editor at Montreal. All letters relating to advertising and all subscriptions must be sent to the publisher only, at Toronto.

An Apology.

Several circumstances have occurred which make it necessary to defer until the next issue a good deal of interesting original matter. The next number will also contain a condensed report of the Union Dental Convention, October 28th to 31st, in Berkeley Hall, corner Berkeley and Tremont Streets, Boston. Fourteen societies will unite at this meeting.

Tit-Bits.

Busy or bothered men, as most of our Dentists are, do not feel like sitting down at the close of day to write elaborate articles for the Journal; but there is hardly one in the profession who could not send us some hint from practice, or some tit-bit of daily experience, that would perhaps be much more useful.

A Secret Revealed.

A suspicious character is retailing in Ontario a local anæsthetic at five and ten dollars. He makes the purchaser sign an agreement to forfeit \$100 if they divulge the secret. He then goes out and sells it to any other person who will buy it. Our subscribers can save their money, as we herewith give it to them: Chloral hydrate, 26 grains; fluid extract belladonna, 10 drops; sulphate atropia, 1 grain; carbolic acid, 8 drops; muriate cocaine, 18 grains; saturated solution boracic acid, 8 drachms. Dissolve well. Then filter.

At the seventh annual session of the National Association of Dental Faculties, held at Excelsior Springs, Mo., August 4th, the application for membership of the Royal College of Dental Surgeons of Ontario, which was laid over last year, was received and admitted.

In the next issue we shall begin a careful abstract of all the journals, condensing matter of scientific and practical value into small space.

Correspondence.

DEAR SIR,—I am not a subscriber to the JOURNAL, and I don't mean to be, and I'll give you my reasons: You take too high a stand to start with, as the profession is new in Canada, and the dentists cannot afford to starve for the sake of keeping up appearances, societies, journals. I never asked anybody for ideas, and I don't give any. I do not trouble any one. If you choose to crack up education, I will not quarrel with you. Only I have so far satisfied a good majority of the people of ——— for over twenty-eight years or more, and I think my work will speak for itself. I would not have ninety-nine out of every one hundred of your "educated" young men in my office. They think they know so much; you discover they know very little, though they can talk theory to you, and have more brag and gas than real ability. Just let dentistry slip along in the old way, and if you have any practical hints give

them to us, and we can pay for them. But I say we don't want "highly-educated" men. We want good mechanics, who can work in their shirt-sleeves, and who aren't particular about all the fine nonsense of antiseptics, bacteria, etc. What the mischief does it all mean? Am I a fool, or are you? [You are, decidedly.—ED. D. D. J.]

Reviews.

Dental Surgery, including Special Anatomy and Pathology. A Manual for Students and Practitioners. By HENRY SEWILL, M.R.C.S., L.D.S. Eng. Third edition. Bailliere, Tindall & Cox, 20 King William Street, Strand, London, 1890. E. M. Renouf, 2240 St. Catherine Street, Montreal, or any bookseller in Toronto. Price \$3.25.

In the October number for 1889, we reviewed "Dental Caries," by Mr. Sewill, and expressed the special pleasure it gave us to meet with a work of such scientific and literary merit. The present volume, by the same author, is unquestionably a model in its way, and by far the most valuable contribution to dental pathology the profession has possessed for some time. The list of contents embrace anatomy and histology of the teeth, development, growth of the jaws; abnormally formed teeth; irregularities; caries, prevention and treatment; exposure of the pulp; diseases of periosteum, periodontitis, alveolar abscess, periostitis and necrosis of the maxillæ, exostosis, necrosis, absorption of roots, absorption of alveoli, pyorrhœa alveolaris. Caries and its sequels in infancy and early childhood. Diseases of the gums and buccal mucous membrane. Ranula, glossitis, abrasion, erosion injuries. Concussion, dislocation and fracture of the teeth. Pivoting. Porcelain inlays, crown, bar and bridge work. Salivary calculus. Morbid growths connected with the teeth. Diseases of the autrum. Toothache, neuralgia and diseases of the nervous system. Extraction. Dislocation and fracture of the jaw; closure of the jaw. The list of authors consulted is also given. One of the valuable features of the book is the very fine *fac simile* reproductions of photomicrographs, by Messrs. Pringle and Charters White, which are, perhaps, the finest thing of the kind yet published in dental liter-

ature. Mr. Jonathan Hutchison contributed his original drawings from which the engravings of syphilitic and honeycombed teeth are taken. A very wise discrimination has been shown in the use of the wood cuts to be found in manufacturers' illustrated catalogues.

The chief value of Mr. Sewill's work is in the original research into dental pathology, assisted by microscopical and bacteriological experts. The phenomena of caries has been conscientiously investigated, and the result of Mr. Sewill's work must prevail over the loose and unscientific argument with which we were familiar. Mr. Sewill encourages the ordinary observer by the assurance that research into the nature of caries is by no means difficult. Mr. Sewill does justice to the labors of former and contemporary observers. We cannot too highly commend this valuable volume to our subscribers. The Canadian dentist who does not possess it must remain behind the times, so far specially as to the most reliable investigation into the phenomena of the principal disease with which we have to deal. Messrs. Balliere, Tindall & Co. deserve credit for the handsome style in which they have published the book.

University Quarterly Review. Occupied with subjects of current thought. Second quarter, 1890. Toronto. Single number, 50 cents; per annum, \$2.00. Communications to be addressed to P. O. Box 298, Toronto.

We have been so accustomed in Canada to a deluge of trashy, as well as of meritorious, efforts in literary home journalism, that we are loath to believe a really good one will succeed, and publishers who attempt such creditable enterprises as the above have, no doubt, to bear the burden of temporary disappointment. The *Canadian Monthly*, which did such valuable service to Canadian literature, sealed its doom by its alliance with a gentleman and a scholar, who, however much he was respected as such, failed to sympathize with the spirit of Canadian and British feeling prevalent in the country. No doubt, too, the rivalry of English and American periodicals had a good deal to do with its failure. The publishers of the *Review* have acted wisely in creeping with a quarterly before they try to run with a monthly, and the success so far

justifies the belief that it has come to stay. The same feeling which should inspire a Canadian dentist to support a Canadian journal devoted to his specialty, no matter how many foreign rivals there may be, should induce every intelligent Canadian to give the *Review* a place in his home. A journal of this kind should be on every dentist's table.

A New Medical Dictionary; a compact, concise vocabulary, including all the words and phrases used in Medicine, with their proper pronunciation and definition, based on recent medical literature. By GEO. M. GOULD, A.B., M.D. P. Blakiston, Son & Co., Philadelphia; E. M. Renouf, Montreal; or any Toronto bookseller. Small octavo, 520 pages; half dark leather, \$3.25, with thumb index, half morocco, marbled edges, \$4.25.

The need of a new medical dictionary has been keenly felt, especially by students, within the last few years, owing to the advancement in medical and surgical science. This work is not a mere compilation from other dictionaries; the definitions have been made by the aid of the most recent standard text-books. It includes several thousand new words not contained in any similar work; tables of the abbreviations used in medicine, of the arteries, of the bacilli; giving the name, habitat, characteristics, etc., of ganglia, leucomaines, microcci, muscles, nerves, plexuses, ptomaines, etc. It is a decided luxury to the student, and will, no doubt, become a text-book in the colleges. In fact, it is a little library in itself.

Irregularities of the Teeth and their Treatment. By EUGENE S. TALBOT, M.D., D.D.S. Second edition, revised and enlarged. 234 illustrations. Philadelphia: P. Blackiston, Son & Co., 1890. E. M. Renouf, Montreal, or any Toronto bookseller.

Dr. Talbot has in this new edition produced a really valuable work, which only an earnest and experienced author could write. Part I., comprising one hundred and sixty-six pages, is devoted to the etiology of irregularities, discussing constitutional and local causes very fully and clearly. An historical sketch of theories regarding the etiology of irregularities of the maxillæ as well as

the teeth is included. The author may seem to have omitted many details of treatment, in so far as illustrating special cases, but the omission is justifiable, as no two cases can be treated alike, and the practitioner who familiarizes himself with the preceding portion of the book, will intuitively conceive methods for any special case with which he may have to deal. The various mechanical forces are described clearly, while the consideration of the different methods of Drs. Patrick, Farrar, Byrnes, Coffin, and the author's, as well as the treatment of special forms of irregularities, are fully explained. The illustrations, one hundred and sixty-nine of which are original, are very fine. It is unnecessary to repeat that the publishers have maintained their reputation in this volume.

A Compend of Dental Pathology and Dental Medicine. By GEO. W. WARREN, D.D.S. Illustrated. Philadelphia: P. Blakiston, Son & Co., 1890. E. M. Renouf, Montreal, or any Toronto bookseller. Price \$1.

One of the handy and useful little series of "Original Compend," based on reliable text-books, and useful to all students.

Manual of Dental Surgery and Pathology. By ALFRED COLEMAN, L.R.C.P., F.R.C.S. Revised and adapted to the use of American Students and Practitioners. By THOS. STELLWAGEN, M.A., M.D., D.D.S. Philadelphia: Henry C. Lea's Son & Co. E. M. Renouf, Montreal, or any Toronto bookseller.

Mr. Alfred Coleman has long been distinguished in British dental circles, as one of the best teachers in the dental schools of London, and whose labors were rewarded by the esteem of his friends in once placing him in the position of President of the Odontological Society. The American edition issued so handsomely by Messrs. Lea and Sons, has been thoroughly revised and adapted to the use of students and practitioners in the United States and Canada, by Dr. Thos. C. Stellwagen, of Philadelphia, which will be an assurance of its practical value. Mr. Coleman aims to cover the field of operative dentistry, and while he will naturally, like all Old Country writers, find critical objectors in this country, the general object, and the special merits of the work, must give it a high place in our literature.

A System of Oral Surgery, being a Treatise on the Diseases and Surgery of the Mouth, Jaws, Face, Teeth and Associate Parts. By JAS. E. GARRETSON, A.M., M.D., D.D.S. Illustrated with numerous wood cuts and steel plates. Fifth edition, thoroughly revised, with additions. Philadelphia: J. B. Lippincott & Co., 1890. Price \$9. E. M. Renouf, Montreal, or any Toronto bookseller.

Thirteen hundred and twenty-one pages of anything coming from the pen and experience of Professor Garretson, is sure to have received careful and conscientious authorship. Thirty years of practice, and exceptional opportunities in clinical work give assurance that the author has well performed the responsibility of placing this before the critical world of dentistry. Its chief value lies in the alliance Dr. Garretson keeps in view of medicine and surgery with dentistry proper. While acknowledging that an operator may be a first-class operator, and fully able to practise dentistry proper without a general medical education, it is seen at a glance that such dentistry must necessarily be circumscribed. The question is just this: Why limit the scope and sphere of the dentist to the specialty of operative practice if the leaning and taste go towards oral surgery? Dr. Garretson's work seems to give weight to the belief that an oral surgeon must also be a dentist, if he is to do the best that two professions can supply. The volume shows admirably what oral surgery is when practised from the standpoint of oral surgery. The author may be acknowledged as the pioneer of a new development of dentistry, but only those who have had a thorough medical and surgical education are qualified to follow where he leads. There is not a dentist in the land, however, who would not have his ideas broadened by a careful study of this splendid work.

Dental Mirror, monthly. The Dental Publishing Co., New York.
Editor, Rodrigue Ottolengpi, M.D.S.

A bright and sparkling new venture in dental journalism, which promises to be a success, under the editorship of one of our ablest men.

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